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ORIGINAL COMMUNICATIONS.

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TUBERCULOSIS OF THE MOUTH.*

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Tuberculosis lesions of the mouth include those involving the lips, cheeks, gums, hard palate, soft palate, tongue, teeth and alveolar process. Tuberculosis of the pharynx is not included in this paper, although it is difficult to draw the dividing line. So large a subject as tuberculosis of the tonsils forms a sub-division of pharyngeal tuberculosis and is also omitted from this discussion, although it will be necessary for purposes of comparison and illustration to touch upon all lesions of tubercular character ordinarily seen by what is known as pharyngoscopy. It is comparatively rare to see isolated lesions involving but one of the structures included in the mouth, and it is the author's belief that such rare cases form a class by themselves, possessing the same general characteristics that other tuberculosis lesions of the upper air passages do, but marking a distinct difference in course and prognosis.

A careful review of over 200 references, abstracts of which will appear in a subsequent paper, impresses one with the rather large number of tuberculous lesions of the mouth which have, from the time of Thomae's article,¹ 1839, been reported. The largest number, however, have appeared within comparatively recent years and I wish to mention especially the early articles of Bosworth,² DeBlois,³ Delavan.⁴ Yet when one analyzes the extensive literature, he must be struck by the general inaccuracy in diagnosis and the lack of appreciation of district variations and differences in these lesions; differences which are of special importance in etiology and prognosis.

* Read before the Thirteenth Annual Meeting of the American Laryngological, Rhinological and Otological Society, New York City, May 30, 31, and June 1, 1907.

FORMS.

Tuberculous lesions may manifest themselves in different forms, i. e., according to pathologic changes, according to mode of development and according to their clinical course.

First; the various pathologic alterations seen are nodular infiltration, superficial ulceration, deep ulceration, perforating ulceration, necrosis of bone, chronic abscess and tumor.

Second; according to the mode of development, we have two forms, "endogenous" and "ectogenous" (Grünwald),⁶ which corresponds to the general classification of Holländer⁷ into "descending" and "ascending."

Third; according to clinical course, we may have "malignant" and "benign."

Clinical observation confirms this classification. The "ectogenous" or "ascending" form, that which may be designated as the inoculation variety or purely local, represents the less active, sluggish or "benign" type, while the "endogenous" or "descending" variety, that which represents infection through blood and lymph streams, through miliary deposits or infection from within, corresponds to the more active, virulent, malignant type.

ETIOLOGY.

It is a well established fact that tuberculosis of the upper air passages, and particularly of the mouth and pharynx, is more commonly found in males than females. This leads to the question of how far local irritation of the mouth and possibly slight injury of the mucous membrane enter into causation of tuberculosis. This also raises the question as to the existence of primary tuberculosis of these structures. There are innumerable cases upon record in which the only demonstrable lesion is that localized in the mouth and especially upon the tongue. In these cases, the history of ulceration following a slight injury to the mucous membrane, which although nothing more than an abrasion to begin with, refused to heal, should be fairly conclusive proof that the abraded surface was an easy portal of infection in which tubercle bacilli became lodged, the characteristic tubercular process following. On the other hand, assuming that there is a necessary vulnerability without which tubercle bacilli may be innocuous, leads to the belief that there already exists in individuals developing such a localized tuberculosis, another and primary focus of infection. Auguy,⁷ 1895, and others since then have stated that the most frequent mode of infection is through the blood current. Walsham⁸ has shown the

importance of the lymphatic system in the development of tuberculosis especially with regard to the frequency with which infection may be conveyed to the bronchial glands from above, through the adenoid tissue in the throat, including the pharyngeal and faucial tonsils. It has been unquestionably demonstrated that tuberculous infection may invade the system through the tonsils without producing any alteration in the tonsils themselves. It has also been shown by Cook⁹ that the teeth, especially when diseased, form excellent foci through which infection may be carried to the adjacent lymphatic structures. The question, therefore, becomes an extremely complicated one, especially when we remember that post mortem examinations have revealed the presence of foci of tuberculosis in the lungs which were not suspected and could not have been demonstrated ante mortem. It seems reasonable to conclude that, although local or systemic causes exist, infection may descend through the lymphatic system to the bronchial glands, invade surrounding structures and be carried by the blood current to such parts as the tongue, the lips, the gums or the hard palate, and that additional local irritation or trauma, however slight, may determine the outward manifestation of tuberculosis in these regions. Ragged, sharp or decayed teeth, extraction of teeth, poorly fitting dentures, biting the tongue, injury from pins or other sharp bodies in the mouth constitute the more common local cause. In fact, when we consider that the mucous membrane of the mouth, although more or less constantly bathed in tubercle bacilli laden sputum in tuberculous individuals, develops tuberculous lesions but rarely, one must admit that there exists a special protective agency. This protective agency obtains so long as the surface of the mucous membrane is not altered either by traumatism or pathologic changes. Once this protective agency is in a measure diminished, local tuberculosis may manifest itself. The more frequently one sees tuberculosis of a given organ, the more reasonable it is to presume that the infection of that structure came about through the blood or the lymph current. The less frequently certain structures are involved, the more reasonable to suppose that some local cause must operate to overcome its invulnerability. This thought is supported in the classification of Grünwald, Walsham and others as well as in the clinical history. It is a recognized fact that the so-called primary lesions of the mouth are more sluggish and less malignant than the secondary varieties, the latter developing through blood and lymph current in an organism abundantly attacked by the tuberculous process. This though is further borne out by the slow and

comparatively non-malignant affections of the gums, the hard palate, the lips, the cheeks and the tongue, and the rapidly progressing, actively malignant course of tuberculosis of the pharynx and tonsils.

SUBJECTIVE SYMPTOMS.

Tuberculous lesions involving the tongue, the lips, the gums, may exist for some time before the patient is aware of their presence. Even ulcerating lesions may develop to a considerable extent before attracting attention. In this respect, these lesions differ from those involving the pharynx and larynx. The earliest manifestation is a sense of slight soreness or burning, marked particularly when the diseased surface is irritated by contact with food. Soreness may become decided pain, more especially when the lesions involve the tongue. When seen upon the hard palate or gums the pain rarely becomes severe, differing from the usual intense pain of tuberculous ulcers. There is localized swelling and slight increase in the secretion of the parts, which becomes viscid, grayish white or dirty. A slight odor is often apparent, although rarely becoming offensive. Even when the ulceration has gone on to marked necrosis of the underlying structures, the odor that is at time discernable may be attributed to the general cachexia of the individual rather than to the local lesions. Glandular involvement may or may not be present. I have seen it in very early lesions and have failed to discover any enlargement of cervical glands in cases far advanced. When it does exist it is rarely painful. In tuberculosis of the tongue, lips, gums or palate, the general symptoms of the patient are comparatively slight except in those cases which develop in the course of severe general infection, such as is found in a miliary process. These severe cases are usually marked by the rapid development of lesions extending to the soft palate, the tonsils and the surrounding pharyngeal structures when dysphagia and odynophagia of severe type, high temperature, rapid pulse, marked emaciation and exhaustion may be added to the symptoms.

OBJECTIVE SYMPTOMS.

Excluding those isolated instances of tumor and abscess,³⁰ there is apparent to the most casual observer a definitely uniform local lesion. The general appearance is that of a pale, superficial ulceration without inflammatory areola, edges irregular in outline and beveled or undermined, tending to spread laterally, not deeply. A viscid, dirty white secretion covers the ulceration, which when cleaned away brings to view a more or less nodular appearance.

Scattered irregularly over the surface of the ulceration and upon its margins are seen small red, soft granulations, interspersed with pin head spots of yellow or gray. These yellow spots, the spots of "Trelat," may be seen also upon the mucous membrane adjacent to the ulceration.

Case I (Figures 1 and 2) demonstrates very early as well as moderately advanced tuberculosis of the gums. This patient, aged 26, was first seen in December, 1906, having been referred by Dr Bergtold. He has had pulmonary tuberculosis one year. In August, 1906, the gums became sore. There was also some soreness in the nose and larynx, the latter inducing painful and difficult swallowing. A typical tuberculous ulcer was seen upon the left surface of the nasal septum. The larynx presented pale infiltration of both arytenoids with numerous small ulcers and grayish deposits. The gums over the first bicuspid on the right side of the upper jaw and over the first and second bicuspid right side, lower jaw, were seen to be covered with small redish nodules, very superficial ulcers and a few pin head yellowish spots. The typical tuberculous appearance of a very early lesion was readily demonstrated. Upon the lingual surface of the gums of the first and second molars, lower jaw left side, more advanced lesion was seen, possessing, however, the same characteristic nodular superficial ulceration with redish and yellowish spots. Although typical in appearance, repeated and thorough examination of curettings of these lesions by Dr. Todd failed to demonstrate the presence of tubercle bacilli.

The margins of the ulcerations are rarely indurated. Upon the tongue, however, a slight induration may be felt and especially where healing has occurred, leaving the organ markedly fissured. The character of these indurations is a fibrosis, which has occurred in the healing process.

Case II (Figures 3 and 4) shows a typical case of tuberculosis of the tongue. Figure 1 illustrates the fissured appearance which has resulted in the healing process. The induration on the margin of these fissures being marked. Figure 2 shows an active lesion at the tip of the tongue, presenting all the usual characteristics of tuberculous ulceration. This case was that of a man aged 35, who has had tuberculosis for seven years. He came to Colorado immediately upon development of the trouble. Eleven years ago or four years before pulmonary tuberculosis was detected, he had a small superficial ulcer upon the dorsum of the tongue, which refused to heal. Subsequently similar ulcerations on the dorsum developed and continued active for an indefinite period. The patient cannot

state exactly when healing began. One year ago the ulceration upon the tip developed, which was extremely painful, a symptom which did not obtain in the ulceration upon the dorsum. When seen at the National Jewish Hospital for Consumptives in December, 1906, the healing process upon the dorsum of the tongue was complete with the exception of two small lesions. The tip of the tongue, however, was in a condition of active ulceration. Careful curettings from the dorsal as well as tip ulcers, showed tubercle bacilli in intimate relation with the epithelium cells. At the present time, May 23rd, 1907, the patient's general condition is slowly failing, the ulceration upon the tongue, both dorsal and tip, are perfectly cicatrized.

When the disease extends to the soft palate, the anterior or posterior pillars, the uvula or the tonsils, a somewhat different picture presents itself. The very earliest appearance is a marked pallor which is heightened by an edematous swelling. This edema may be extremely slight, but it gives to the structure a characteristic appearance. Very careful observation will reveal the presence of numerous yellow or grayish pin head spots just under the surface of these pale, edematous structures.

Case III. (Figure 5.) This condition is typically illustrated by the following cases. C. Mc., male, aged 28, referred to me Oct. 2nd, 1906, by Dr. S. Solis Cohen of Philadelphia. The patient had slight pulmonary involvement and a tuberculous ulcer of the left arytenoid and vocal band. These lesions had improved under Dr. Cohen's treatment, the improvement continuing after coming to Colorado. On the 27th of February, 1907, both tonsils were swollen, pale and dotted with a few small grayish deposits. The posterior pillars were slightly edematous. The patient's general condition was failing. A small piece of tonsillar tissue was removed and sections made by Dr. Todd, who reported numerous miliary tubercles, giant cells and caseous centers. A few tubercle bacilli were demonstrated at the edges of the caseous areas.

Case IV. (Figure 6.) Male, aged 24, referred by Dr. Levitt of New York. This patient was presented before the section of Laryngology at the New York Academy of Medicine by Dr. Emil Mayer, Feb. 27th, 1907, demonstrating a possible primary lupus of the larynx. Upon examining the patient March 9th, there were found slight pulmonary involvement, swollen epiglottis, which was red and covered with pin head grayish tubercles and notched in the center, probably from a section removed. The aryepiglottic

folds were swollen, pale, edematous and covered with grayish deposits. The arytenoids were moderately swollen and pale. The patient's condition rapidly grew worse and upon April 9th, there was discovered on the right tonsil a whitish deposit. The left tonsil presented a small, irregular, nodular ulceration with whitish imbedded masses. Scrapings from both tonsils were submitted to Dr. Todd, who reported as follows: "The preparation from the left tonsil shows numerous cells, the structure of which cannot be clearly seen. Careful search shows very few tubercle bacilli scattered among them. The cover glass preparation from the right tonsil contains many squamous epithelial cells and a few other cells which cannot be made out distinctly, and some degenerated material. No tubercle bacilli can be found. Figure 6 shows distinct difference between the two tonsils, the right presenting an exudate upon its surface, while the left shows the typical tubercular appearance. The difference in the two tonsils as demonstrated clinically is borne out by the laboratory report.

Following the deposit of tubercles ulceration rapidly develops, the yellowish spots breaking down and coalescing in an irregular manner, giving to the surface of the ulceration the characteristic worm eaten or mouse nibbled appearance. When the ulcerations become deep, as they sometimes do, they still retain upon their margins the characteristic tubercular appearance. This is demonstrated by the following case:

Case V. (Figure 7.) Male, aged 44, advanced tuberculosis of the lungs and larynx of two years' standing. Three weeks before I saw this case the gums became sore and an ulcer developed upon the upper jaw. This seemed to be the result of loose and decayed teeth, which were plainly apparent. The ulceration is a typical deep tubercular ulceration extending to the alveolar process, which is itself necrosed, showing an exposed tooth root. A section of the margin of the ulcer was removed and the laboratory report gives the following: Granulation tissue and a few well defined tubercles with caseous centers; small numbers of tubercle bacilli scattered about the periphery of the tubercles.

Extensive ulcerations involving the soft palate and posterior structures are illustrated by:

Case VI. (Figure 8.) Male, aged 40, advanced tuberculosis of the lungs, sore throat at times during the past seven years. For three weeks past there has been painful and difficult swallowing. Examination of the pharynx shows extensive mouse eaten appearance involving soft palate, both pillars of the fauces, tonsils, uvula

and posterior wall of the pharynx downwards to the left side of the larynx. The ulceration extending forward as far as the junction of the soft with the hard palate.

DIAGNOSIS.

The lack of scientific accuracy so frequently displayed in the diagnosis of tuberculosis of the mouth and pharynx is worthy of note. Any or every ulceration of the mucous membrane of the mouth or pharynx in a tuberculous individual is not necessarily tuberculous. It is feared that this has too often been believed and that it may be the reason so many cases of cure have been reported.

Illustrating this, I present:

Case VII. (Figure 9.) H. T., aged 32, tuberculosis of the lungs, one year. Ulceration on the under surface of the tip of the tongue for six months. These ulcerations are two in number and are not painful. They present a marked red, inflammatory areola, are irregular in outline and show nowhere any of the characteristic grayish or yellow spots, or redish granulations. They are evidently due to contact with the sharp lower incisors, aggravated probably by more or less persistent coughing. When last seen, May 19th, the lower ulceration had entirely healed without treatment.

The diagnosis is certain when there is a pale ulceration, without inflammatory areola, superficial, worm eaten in appearance, dotted with redish pin head elevations and having small yellow or grayish spots scattered throughout. An early diagnosis when the soft palate or tonsils are involved may be assumed when there appears an extremely pale, slightly edematous mucous membrane with small, sub-mucous, pin head, yellow spots.

These diagnostic features, however, are not always present, although they do exist in the vast majority of instances. In all cases the diagnosis should be confirmed by the microscopic findings, and in obscure cases this and the inoculation of Guinea pigs are the only positive tests. The finding of giant cells and caseous material together in sections is almost certain proof of tuberculosis.

In case of the ulcers, the laboratory confirms the diagnosis, according to Dr. J. C. Todd of the Pathological Laboratory of the Denver and Gross College of Medicine, in two ways:

1. Detection of tubercle bacilli, (a) by the microscope, or (b) by inoculation of Guinea pigs.
2. Detection of the histological structures of tubercle in stained sections.

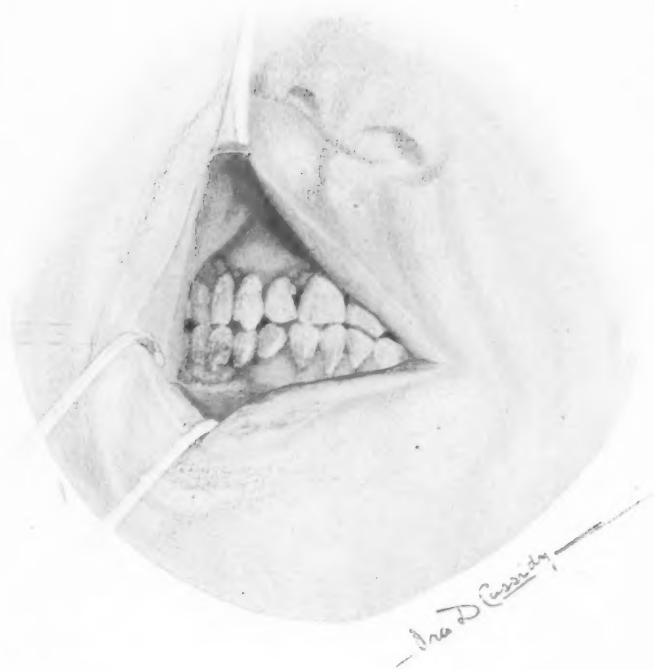


FIGURE I. CASE I.

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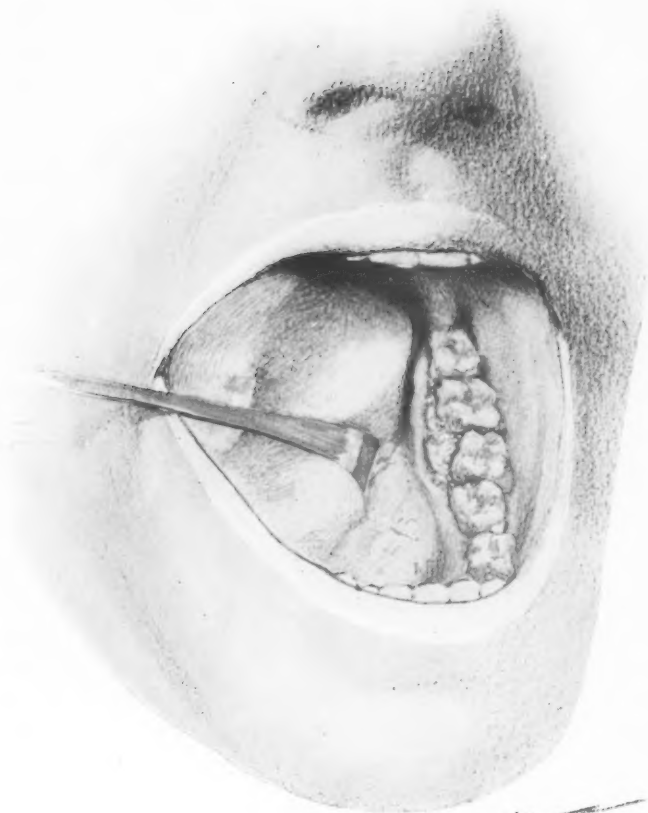


FIGURE II. CASE I.

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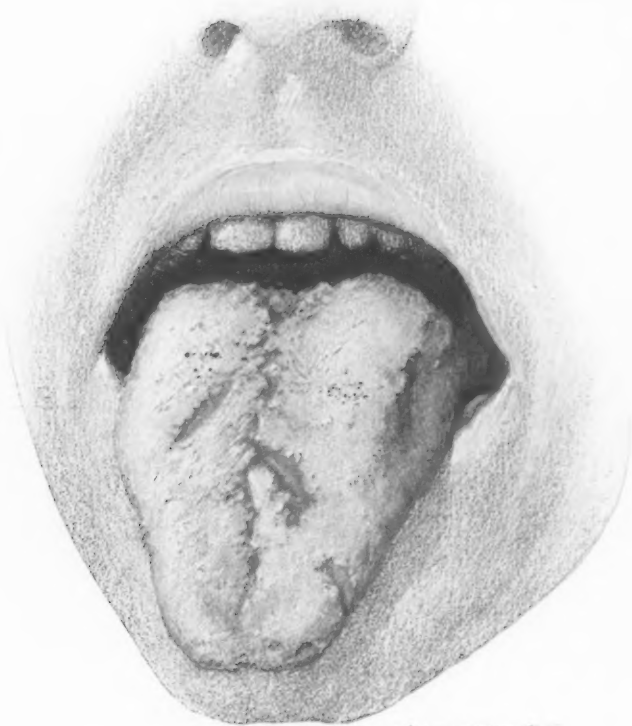


FIGURE III. CASE II.

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FIGURE IV. CASE II.

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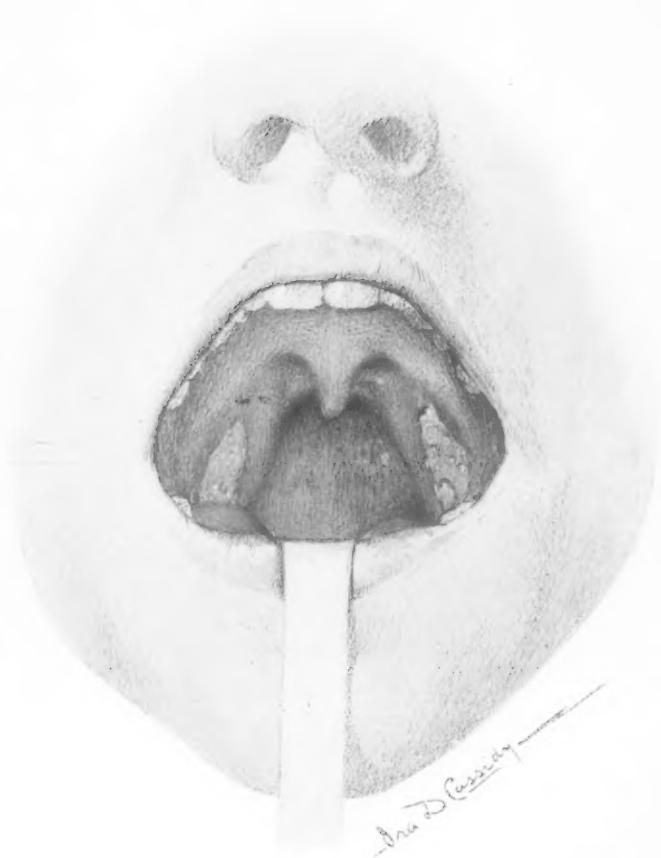


FIGURE V. CASE III.

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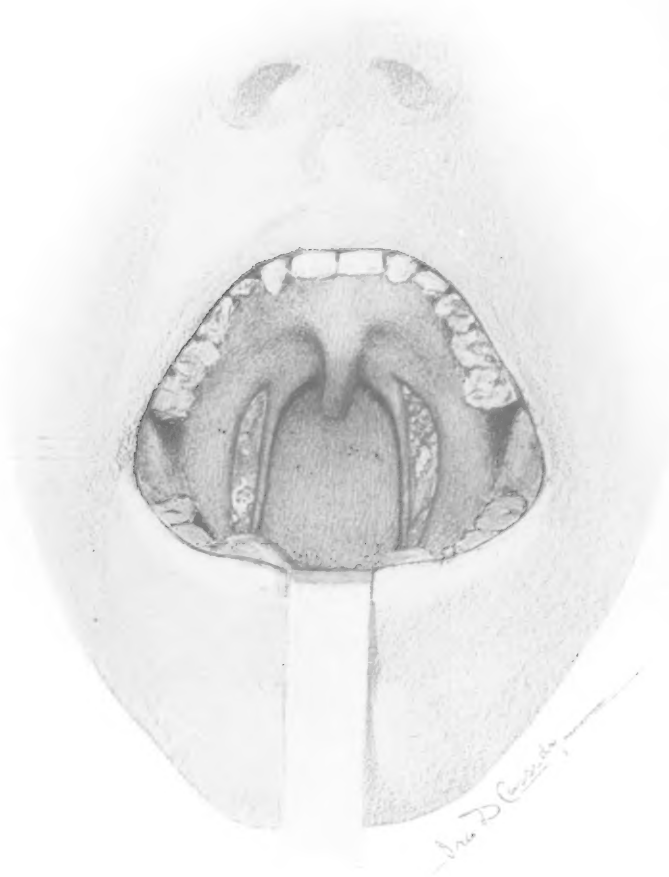


FIGURE VI. CASE IV.

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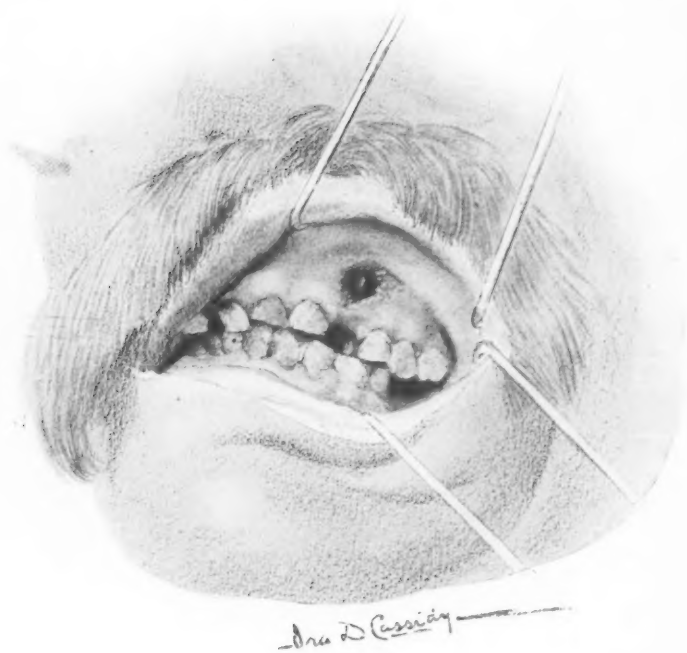


FIGURE VII. CASE V.

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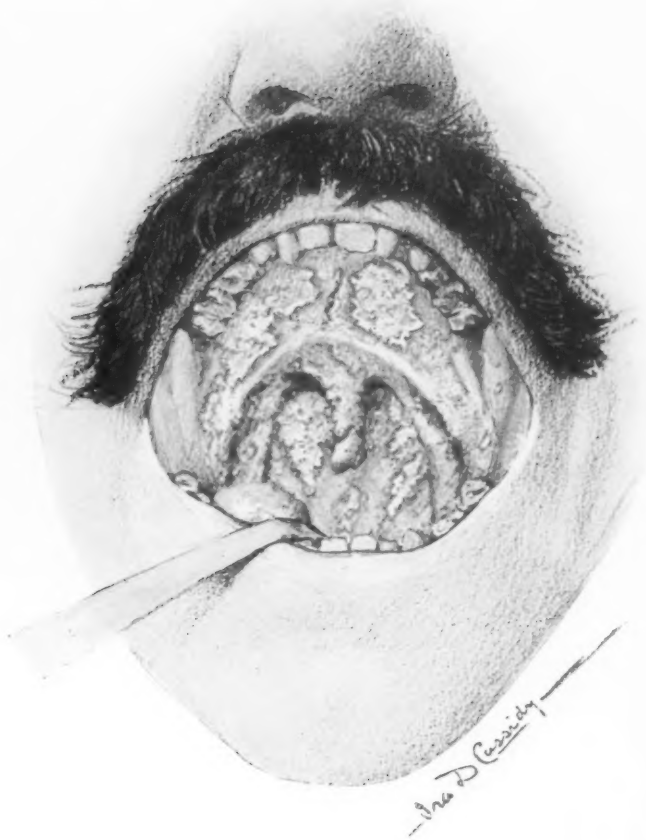


FIGURE VIII. CASE VI.

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FIGURE IX. CASE VII.

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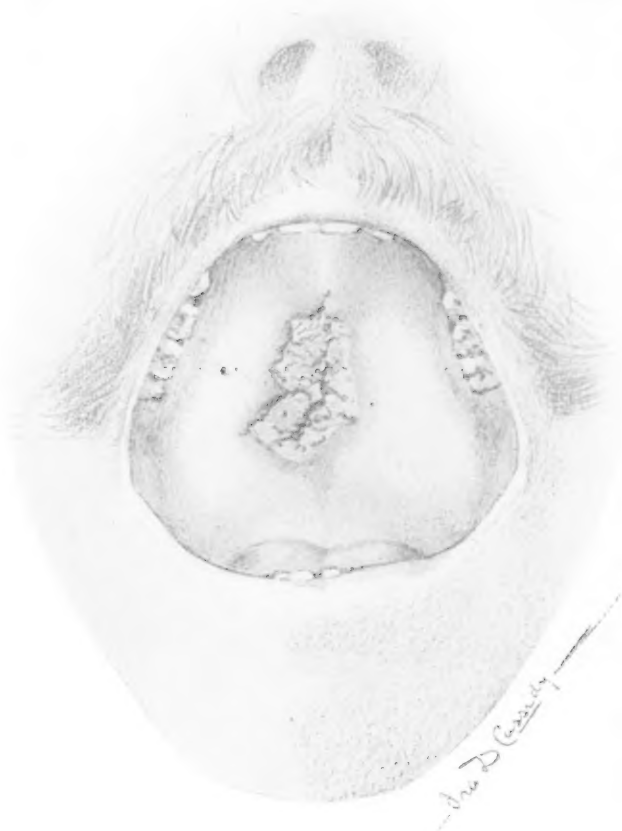


FIGURE X. CASE VIII.

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JOHN C. BERRY
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FIGURE XI. CASE VIII.

JOHN GUERRE
1847-1914

(1) Detection of the bacilli:

(a) Owing to possible presence of tubercle bacilli in the mouth, simple examination of swabs from the surface of the ulcer is of little value. The surface of the ulcer should be thoroughly cleansed and then under cocaine, curetted; or a piece of sufficient size for sections should be exercised. Curettings are to be thoroughly rubbed between slides or cover glasses until the cells are sufficiently dissociated to allow thin smears. The presence of tubercle bacilli in the smears may be taken as proof of tuberculosis, provided the surface of the ulcer was well cleansed, and this is made absolutely sure by finding the bacilli within the small clumps of cells which the rubbing between slides failed to separate.

When a piece of sufficient size can be excised, it should be sectioned and stained for tubercle bacilli. Tubercle bacilli are sometimes abundant even when the structure of the tubercle is very doubtful.

(b) Inoculation of Guinea pigs is resorted to only when other means fail.

(2) The histological structure of the miliary tubercle can generally be found in portions of tissue which have been sectioned and stained. Recognition of the tubercle depends upon the presence and, especially, the arrangement of certain structures; no one structure is diagnostic in itself, although its presence may be very suggestive. However, the presence of giant cells and caseation *together* may generally be accepted as proof when the structure is not otherwise typical and only as forming a part of a tubercle.

Grünwald¹² has shown how difficult it is to find tubercle bacilli in all tuberculous ulcerations. Hajek¹³ has also called attention to this fact in tuberculosis of the nose, therefore, one cannot place all of his reliance upon the presence of these organisms. With few exceptions will one fail to find them present if sufficiently long and accurate search be made. They are usually few in number and scattered and are rarely absent in typical lesions. In the cases presented under Figures 1 and 2, the local lesions were absolutely typical in appearance, but in spite of most thorough and repeated search, tubercle bacilli were not found.

PROGNOSIS.

When the affection involves the structures anterior to the soft palate including the tongue, gums, lips, cheek, hard palate, the prognosis so far as the general lesion is concerned is of comparatively little importance.

Case VIII. (Figures 10 and 11.) V. G. L., aged 58, has been ill with tuberculosis of the lungs for over fifteen years. Slight ulceration of the hard palate and gums were noticed in October, 1906. These lesions have been comparatively free from pain. There is, however, marked soreness and discomfort especially upon eating. Figure 10 shows a typical and characteristic tuberculous ulceration of the hard palate with beveled edges and nodular base. Figure 11 shows more advanced tuberculosis of the gums, rather deeper than usual with undermined edges, especially inferiorly. Careful curettings from both of these ulcers were examined by Dr. Todd, who easily demonstrated tubercle bacilli, but the entire absence of all other bacteria showed the thoroughness with which the parts were cleansed and proved conclusively that the tubercle bacilli were obtained from the surface of the ulcerations themselves and were not the result of contamination.

Tuberculous ulcerations rarely heal, but at the same time their progress is extremely slow. They are the source of but little discomfort and have no special bearing upon the course of an associated general or pulmonary tuberculosis except in so far as they indicate involvement of a small amount of additional tissue. Some of these cases have been said to heal spontaneously, others to have been cured by excision or cauterization. Unquestionably a few rare instances of such cures may be accepted as authentic, such cases representing that comparatively benign form described as "ectogenous" or "ascending." Bernheim¹⁴ states that in buccopharyngeal tuberculosis a cure is the rule. Gleason¹⁵ also states that the "Prognosis as regards healing is favorable." So firmly convinced am I that these statements are erroneous that I venture to question the diagnosis.

When tuberculous lesions involve the soft palate, uvula, the tonsils, anterior pillars and the structures posteriorly, the prognosis is of very much more significance. Not only is the prognosis of the local lesion absolutely unfavorable, but their effect upon the general condition of the patient is so deleterious that one can predict decline and an early and fatal termination. Lesions here are positive evidence of rapidly disseminating miliary tuberculosis.

Two exceptions to the above statements should be made. First, when the lesion involves the tongue the prognosis may be quite as unfavorable as when it involves the pharyngeal structures and second, comparatively benign lesion may exist in the posterior wall of the pharynx.

TREATMENT.

This consists in palliative and curative and should be both local and general. Palliative treatment is directed to the relief of pain. The local application of cocaine or of powdered orthoform are the most valuable remedies. Pain may also be mitigated by curetting and cauterizing, on the theory that the pain is due not so much to the exposed nerves as to the development of small neuromata upon the exposed nerve filaments.

Curative ulcers which involve a small portion of the tip or margin of the tongue, or localized tumors have been removed by more or less extensive, radical excisions. Temporary healing may be brought about by thorough cauterization followed by frictional rubbings with lactic acid or formalin. Galvano cautery has been of some avail and particularly have I seen early tubercular ulcers of the tonsils, lips and tongue healed under this treatment. Usually these healed ulcers reappear or there develop others adjacent to them. In spite of the generally accepted ultimate fatal outcome of these cases, one should not neglect an attempt at cure, and therefore, in addition to local treatment the usual attention should be paid to the patient's general welfare. Rest is of prime consideration, owing to the frequent presence of high temperature. The patient's nutrition should be maintained to the highest possible standard by the administration of large quantities of easily digested, nutritious food. When much pain exists this becomes a question of serious moment and local anaesthetics should be abundantly applied. Feeding by means of esophageal tubes cannot be recommended, for the passage of such a tube is of as much discomfort to the patient as the act of swallowing.

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THE TONSILS AND THEIR RELATION TO THE DEVELOPMENT OF TUBERCULOSIS.*

BY ERNST DANZIGER, M.D., NEW YORK.

The faucial and pharyngeal tonsils are circumscribed lymphoid masses, the larger part of which is contained in a connective tissue capsule.¹ They are lined on their exposed, buccal surface by a columnar epithelium, changing to a squamous epithelium in the follicles dipping down deeply into the stroma of the tonsils. The epithelium shows numerous defects, which, according to Stoehr, are physiological and meant for the transmigration of lymphocytes.

The tonsil itself consists of a stroma of connective tissue containing the blood and lymph vessels and within the meshes of the connective tissue net,—lymphocytes. In the depth of the follicles are germinating centers, where we find cells undergoing mitotic division. The newly generated lymphocytes wander either through the follicles into the buccal cavity or through the defects before mentioned into the deep layers of the tonsils and from there into the lymph vessels or blood circulation.

Wood² has demonstrated in a series of experiments the lymph drainage of the tonsils, by forcibly injecting into their tissue, aniline dyes. By doing so, he succeeded in injecting the vasa efferentia and showed, that the faucial tonsils drain into the superficial glands of the neck, and from there, into the deep anterior chain of the cervical glands, situated beneath the anterior border of the Sterno-Kleido-Mastoid muscle. The first gland of this chain he calls the tonsillar gland, which, if enlarged and pushed forward by other enlarged glands, is often mistaken for the submaxillary gland.

The pharyngeal tonsil drains into the retro-pharyngeal, suboccipital glands and from there into the deep posterior cervical glands, situated beneath the posterior boarder of the Sterno-Kleido-Mastoid muscle. Through anastomosis with retrosternal, peritracheal and bronchial glands infection can be carried directly to the pleura or the apices of the lungs.³ The pharyngeal tonsil is situated at the roof of the pharynx, at the entrance of the respiratory tract, and inspired air comes directly in contact with it.⁴ The faucial tonsils are situated at the entrance to the digestive tract between the

* Read before the German Medical Association, New York City.

palatine pillars, which compress the tonsils in the act of swallowing.

The physiological action of the tonsils consists in the production of lymphocytes. Goodale⁶ of Boston, demonstrated in a series of experiments, how the tonsils react toward the introduction of foreign substances. He applied a solution of carmine to a number of tonsils, the removal of which had been decided upon. After allowing different periods of time to pass he removed the same, and came to the following conclusions. After a short time carmine can be seen in the follicle. Here and there a leucocyte can be found containing a particle of the pigment. By and by, particles of carmine pass through the physiological defects and are surrounded in the subepithelial layer by leucocytes, the nuclei of which are frequently undergoing division. Later on, the carmine enters the deeper layers of the stroma and can even be seen in the lymph vessels.

Bacteria are not absorbed so easily. But tubercle bacilli have been seen by Dmochowitz⁸ and Wood⁷ penetrating the epithelium. Bacilli may enter the tonsils either through their own ability of locomotion, or through growing into them in colonies. The probability that they will penetrate into the stroma or not, depends upon, 1. Their number; 2. Their virulence; 3. The individual power of resistance; 4. The condition of the tonsil. The epithelium seems to be the barrier which prevents the entrance of bacteria; as soon as this is destroyed, the door is opened wide to all sorts of infection.

It is the infection with the tubercle bacilli, which I have selected as my topic in this connection. We all know, of how frequent occurrence chronically enlarged cervical glands are in children. We used to speak of scrofulous or lymphatic, diathesis in this connection. Schlenker⁹ and Krueckmann⁹ have proved through extensive examinations, that a large percentage of these enlarged glands are due to tubercular processes. The infection of these glands is either caused by a retrograde thrombosis of the lymph vessels originating in a pulmonary tuberculosis, or we have to look for the infection in the tonsils. For this reason they subjected all cases of adenitis cervicalis to a thorough investigation of the condition of the tonsils, and found histologically, in a great number, tubercular lesions. They found the same pathological conditions as Dmochwitz and Wood have described, namely: A small number of tubercle bacilli in the follicles, where they penetrate the epithelium. The latter is either

partly torn off the underlying connective tissue or is sometimes expelled en masse. In the subepithelial layers we find tubercles and giant cells. Concerning the frequency of tubercular lesions, the different investigators arrive at different results according to their method of research. One examines microscopically and regards every case as tubercular, where he finds tubercles and giant cells, although Pilliet¹⁰ could not produce tuberculosis by inoculations in a series of pharyngeal tonsils containing tubercles and giant cells. On the other side, the inoculation method, that is, the introduction of suppurative tissue into the peritoneum of an animal, is often unreliable, for the following reasons:

1. On account of the individual power of resistance of the animal.
2. On account of the possibility of an already existing tuberculosis. Therefore, we must always show a lesion at the place of inoculation.
3. On account of the possibility of the presence of tubercle bacilli in the secretions, without actual disease of the organ.
4. On account of the possibility, that the fragment of tissue used may perchance not contain a tubercular lesion, while the organ is diseased.

Therefore the two methods should be combined to arrive at trustworthy results. We have to distinguish two forms of tonsillar tuberculosis, the acute and chronic.

The acute tonsillar tuberculosis is found as a part of miliary tuberculosis or as a metastatic process in the last stage of pulmonary tuberculosis. It causes great destruction of tissue in the form of irregular ulceration and the surrounding non-ulcerated tissue is studded with the yellow miliary nodules. In contrast with the acute form, the chronic is nearly always latent and without symptoms. The latter disease is either primary or secondary. In cases of pulmonary tuberculosis the autopsy showed very frequently tonsillar tuberculosis, although no symptom had indicated such condition during life. Schlenker, Schlesinger, Walsham, Ito, Dmochowitz, Krueckmann and Strassmann found, in 136 cases of pulmonary tuberculosis, 94 cases of tonsillar tuberculosis, or 69%.

The infection of the tonsils in the secondary cases takes place through the sputum. During the act of coughing the sputum containing tubercle bacilli is deposited on the surface of the tonsil and forced into the crypts during the act of swallowing, where the bacilli enter the stroma. That the secondary lesions are not more

malignant and do not cause more destruction of tissue, may be explained by the fact, that the body has become immune to a certain degree by the previously existing pulmonary tuberculosis. Bandelier and Grawitz²² have shown through their thorough observations, that the percentage of tonsillar tuberculosis increases in direct proportion to the amount of sputum. The first to observe, primary tuberculosis disease of the tonsils is Lermoyez²³. After the removal of the pharyngeal tonsil one of his patients lost ground rapidly and developed pulmonary tuberculosis. This occurrence made him examine the pharyngeal tonsils of 32 apparently non-tuberculous patients by the inoculation method, and he then discovered tubercular lesions of their organs. Brindel, Baup, Ruge,²⁴ Dicalafoy,²⁵ Gottstein²⁶, Pluder and Fischer²⁷ corroborated his findings. Wood compiled from different sources 1671 cases with 88 primary tubercular tonsils or 5%.

How is the infection in these primary cases brought about? The pharyngeal tonsil situated at the entrance of the respiratory tractus receives the full impact of the inspired air. If once the tonsil is hyperplastic and has lost its epithelium through previous inflammatory conditions, it can readily be seen how the inspired tubercle bacilli have the right soil for their development and ravages. As soon as the pharyngeal tonsil has become so large, as to make nasal respiration impossible, mouth breathing takes its place and the infection of the faucial tonsils is then brought about in the same manner. But the most frequent course of the latter's infection is food, harboring tubercle bacilli. Orth²⁸ and Baumgarten fed animals with tuberculous tissue and after a short time always found tuberculosis of the cervical and bronchial glands, later also, of the mesenteric glands without a demonstrable intestinal lesion. After the tonsils have become infected, the disease may remain localized, or the lesions may heal in the usual manner; or the infection may travel on to the cervical and bronchial glands, or directly to the pleura; sometimes, a breaking down bronchial gland may empty its contents into a small bronchus and thus infect the apices of the lungs. On the other hand, infection may reach the lymph current and through that avenue the general circulation and so cause a general miliary tuberculosis. One observer found, also, that infected retro-pharyngeal glands involved the cervical spinal column and so caused a Pott's disease.

We have to lay stress on the fact, that the chronic tuberculosis of the tonsils runs its course without symptom. If we consider, that the

processes take place in the depths of the crypts or in the superepithelial tissue, we cannot be surprised, that we are unable to make a clinical diagnosis of these lesions.

I examined clinically in the Country Sanitarium for Consumptives of the Montefiore Home, the tonsils of 100 patients, and in spite of the fact established by the before mentioned investigations showing, that 69% must be suffering from tuberculosis of these organs. I was not able to make a different diagnosis than "atrophic, hypertrophic, catarrhal tonsils or sometimes, yellowish accumulations of secretion in the crypts." Bearing in mind the postulate of Bandelier and Grawitz, I had the patients classified according to the amount of their sputum, but could not demonstrate clinically an increase of pathological tonsils in proportion to the amount of sputum.

But if we know of the possibility of primary tuberculosis of the tonsils, we should not be satisfied in tubercular cervical adenitis to remove the glands. We should first exclude pulmonary disease and in its absence examine the tonsils. Should we find them in any way abnormal, it becomes necessary to remove them. Otherwise we may leave behind the *fons et origo* of the infection and may expose the patient to the risk of repeated operations.

Furthermore the removal of the tonsils should be radical, as the lesions are situated in the depths of the follicles, which almost reach the connective tissue capsule.

If, after such operation, the patient fails to pick up, we have to start immediately the dietetic hygienic treatment to prevent the further spread of a possible tuberculosis.

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The Treatment of Meniere's Disease by Means of Galvanism.

MARTIN SUGAR. *Arch. f. Ohrenh.*, Leipzig, Dec. 1904.

The author has obtained satisfactory results by the use of the galvanic current in the following manner. A large cathode is applied to the back of the neck and a smaller anode to the tragus on the affected side. A current of 1-20 milliampere is gradually increased to 5 milliampere and maintained for five minutes.

YANKAUER.

THE ETIOLOGY OF TUBERCULOSIS OF THE UPPER RESPIRATORY TRACT.*

BY GEORGE BACON WOOD, M.D., PHILADELPHIA.

The great factor in the etiology of the disease, tuberculosis, is infection with the specific germ, the tubercle bacillus. Tuberculosis of all organs has, of course, this common feature, and for the sake of conciseness the discussion of the etiology of tuberculosis of any individual organ or set of organs should not include the morphology and pathologic power of the tubercle bacillus, but rather be confined to the peculiar resistance which the organ under discussion offers to the invasion of this germ. As far as the nose and throat are concerned certain portions are peculiarly resistant to bacterial invasion, while other portions are comparatively easily invaded. This variation in resistance depends both on the anatomy and the physiology of the different parts.

When we consider that the large majority of individuals breathe through the nose, and that the air which is forced through the nasal passages has been practically filtered free from dust and bacteria by that organ, it seems remarkable that tuberculosis of the interior of the nose is so comparatively rare.

St. Clair Thomson and Hewlitt experimented with an apparatus which enabled them to collect the air as it came out through the choanæ. In a given quantity of laboratory air they found 29 mould spores and 9 bacteria; whereas, after the same quantity of air had passed through the nose it contained only 2 mould spores and no bacteria. This experiment was confirmed again and again. The question naturally arises, what becomes of those organisms which lodge in the nose as the result of this filtration? The same experimenters placed a pure culture of the *Bacillus Prodigiosus* on the septum well within the vestibule. A diminution in the number of bacteria could be noticed within fifteen minutes, and practically no trace of the bacteria could be detected after eighty minutes; and after two hours had elapsed in no case could any growth be obtained in cultures from the spot inoculated.

This opposition of the nasal mucous membrane to the growth of bacteria was also demonstrated by Malatto. Piaget declared that

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the nasal cavity, with the exception of the vestibules, both in man and animals, is nearly free from germs. He says that this asepsis is largely dependent upon a bactericidal action of the nasal mucus, and that this mucus is absolutely fatal to the anthrax bacillus, the diphtheritic bacillus, some forms of streptococcus and staphylococcus, the colon bacillus and some other germs. Inglaure, on the other hand, states that normal nasal mucus does contain a certain number of bacteria, but he admits that the nasal fossa rids itself of a large number of the bacteria inspired. Wurtz and Lermoyez, in a recently published research, again demonstrated that the nasal mucus is bactericidal to the anthrax bacillus and to other germs to a greater or less extent. They obtained the nasal mucus from normal individuals by placing bits of packing in the nasal fossæ, the fossæ having been previously washed out and cleansed. The mucus in the fresh state and also after it had undergone sterilization was mixed with bouillon containing anthrax bacilli, and even after three weeks of incubation no growth could be found, and inoculated guinea pigs gave negative results. Parker and Wright, however, found the nose sterile in only 6 out of 36 normal individuals, but the non-sterile cases gave very few colonies.

In summing up the evidence which I have just gone over, it would seem that the mucous membrane of the nasal fossæ exerts an inhibitory influence upon most bacteria, and that most probably this inhibitory influence is due to the bactericidal action of the nasal secretion. It must not, however, be supposed that the nasal mucus is equally antagonistic to all germs, and it concerns us especially to determine if possible its action on the tubercle bacillus.

Strauss, in 1894, found virulent tubercle bacilli in the nasal cavities of persons who, not having tuberculosis themselves, were in more or less constant attendance upon tuberculous patients. The dirt, solid particles and mucous contents of the nasal cavities were removed by sterile cotton swabs from twenty-nine persons, including hospital patients, internes, and patients suffering from chronic maladies other than tuberculosis. The inoculations made with the material thus obtained showed that about 40% of persons examined had virulent tubercle bacilli in their nasal cavities.

Freudenthal, in 1896, investigated the naso-pharynx of 133 patients, 52 of whom were tuberculous and 81 suffering from some other diseases. Tubercle bacilli were found in all of the 52 tuberculous patients, and in 9 out of the 81 non-tuberculous.

In 1900, Jones removed the dust and crusts from the nasal mucus, making inoculation tests with the material thus obtained.

Thirty-one animals were used. The majority died of some unknown infection, but three showed distinct tuberculosis.

Lake holds that the nose very seldom forms a mode of entrance for the tubercle bacillus into the body. Under his direction, Lucas made cover-glass preparations from the nasal cavities of 50 tuberculous patients, in all of whose sputum tubercle bacilli were present. In only one case were tubercle bacilli found, though 80% of these cases showed some form of organism.

Guinea pig inoculations made by myself from four persons who had been more or less in contact with tuberculous patients gave negative results. I obtained the material by swabbing the floor of the nasal cavities with sterile cotton-wrapped applicators, washing them off in sterile water, and inoculating this water into the abdominal cavities of guinea pigs.

In a certain per cent of persons undoubtedly virulent tubercle bacilli will be found in the nasal cavity, but that they stay there for any length of time is not probable, so that tuberculosis of the nasal fossæ should be a comparatively rare condition.

Knight says that up to 1901 there had been 108 cases of tuberculosis of the nose reported. Ernst Pasch in 1905 reports 17 cases coming under his own observation. Other sporadic cases have been reported since then, among them one by Onodi and Rossi, and one by Marcelli, both of which were supposed to be primary.

It is very likely that a large number of cases of tuberculosis of the nose are overlooked, but even then it is remarkable that so few cases have been reported. A case of primary tuberculosis of the nose would, on account of its infrequency, undoubtedly be published. Personally I have never seen a case of primary tuberculosis of the nasal fossæ, and though I have had a fairly large experience during the last three or four years in examining the nasal cavities of cases of pulmonary tuberculosis at the Phipps Institute, I have seen very few secondary involvements.

Summing up, it would seem that the nasal cavities are only rarely infected with the tubercle bacillus, probably because the time necessary for the propagation of this slow-growing organism permits the cilia of the nose and the nasal secretions to remove it from the fossæ; but it is also very likely that the nasal secretions themselves are directly inhibitory to its growth.

Tuberculosis of the pharynx should be considered as practically identical with tuberculosis of its lymphoid tissue. I doubt if the stratified squamous pavement epithelium, washed continually with

a downward flow of mucous, is ever infected by the tubercle bacillus, except through the lymph-follicles, the lateral folds of the pharynx or one of the four tonsils. Statistics on pharyngeal tuberculosis are of little value in confuting or supporting this statement, because the large majority of writers have not differentiated between an ulcer on the lymph-follicles or the lateral folds from one situated between these structures. If we include under the term "pharyngeal tuberculosis" lesions of its lymphatic tissue then tuberculosis of the pharynx is not very rare.

There is a great discrepancy in the reported percentages of secondary pharyngeal tuberculosis, while Levy reports 67 cases in 500 autopsies; Böcher reports only 12 cases in 2950; and Lublinski 5 in 1,600. However, the average percentage of all these cases would be 1.4%, which corresponds pretty closely with the 1% of Guttman.

Sokolowski in 1903 called attention to the frequency with which the lateral folds of the pharynx become tuberculous, and showed that the condition resembles very closely the so-called latent tuberculosis of the tonsils, and like this condition in the tonsils the disease can be diagnosed only after portions have been removed and put under the microscope. In 13 cases of tuberculosis which he examined, 8 showed involvement of the granular tissue of the pharynx or of the lateral folds, that is 61½ per cent.

Cordes speaks of pharyngitis lateralis as the formation of a new small elongated tonsil; meaning by this that hypertrophy of the lateral folds of the pharynx is accompanied not only by hyperplasia of the lymphoid tissue but also by the formation of veritable crypts and follicles. It would seem, therefore, that the discussion of the etiology of tuberculosis of the pharyngeal mucosa would best be included in the discussion of the etiology of tonsillar tuberculosis.

When we come to consider the comparative susceptibility of the various parts of the upper respiratory tract to tuberculosis, preference for liability to infection must be given to the tonsillar tissues. Let us consider the evidence which justifies this proposition. The crypts, which are characteristic of all tonsillar tissue, afford a comparatively open door for microbic invasion. The lumen of the crypt acts almost as an incubator, and the peculiar disintegrated condition of the lining epithelium does not, like the stratified epithelium of the mouth, present a mechanical barrier. The penetration of bacteria into the tonsil parenchyma is prevented

almost solely by the vital resistance of the living tissue, and if the pathogenic power of the invading germ is sufficient there is practically no hindrance to its entrance within the confines proper of the human body. Both research work and clinical evidence afford abundant proof of this theory, demonstrating the peculiar susceptibility of tonsillar tissue to infection, and the ease with which virulent micro-organisms may pass through its structures.

The results of all the research work done in relation to general microbic invasion through the tonsils show that in the tonsil more than anywhere else on the body surface, external and internal, the penetration of the invading germ depends not so much upon any mechanical barrier presented by the tissue as upon the relative virulence of the germ. Therefore, because the streptococcus can infect the tonsil it does not follow that the tubercle bacillus can do so, and as we are speaking now only of tuberculosis it is not necessary to go into the details of the work done in relation to general microbic infection through the tonsils.

In active pulmonary tuberculosis there is a certain dosage of tubercle bacilli spread fairly equally over the upper respiratory tract, excepting the nose and nasopharynx, and it is probable that the frequency of secondary infections of the various parts will give a fair index to their relative susceptibility. Permit me to quote from a paper published by myself in 1904. The tonsils of 136 cases of pulmonary tuberculosis were examined by seven different observers, and in 94, tuberculous involvement was diagnosed, that is 69 per cent. The diagnosis in these cases was made chiefly by histologic examination. In very advanced cases of pulmonary tuberculosis the tonsils almost never escape infection. In 9 cases reported in 1904, in which I made post-mortem examination, the tonsils in every one showed tubercle with giant cells, and in 38 cases examined during the past year I found histologic changes typical of tuberculosis in 35, and I believe they would have been found in the remaining 3 if the whole of both tonsils had been sectioned.

This predilection of tuberculosis for the tonsils has been confirmed experimentally by Bamp, Ravenel, and later by myself. In experimenting on hogs, I found that the tonsils could be inoculated by a single swabbing with virulent bovine tubercle bacilli, but not once in the whole series of experiments was there found any lesions in the upper respiratory tract outside of the tonsils.

It would seem that all that is required to produce tuberculosis in the tonsil is to bring in contact with this organ a number of bacilli sufficient to overcome the tissue resistance. Tuberculosis of the tonsils should then be the most frequent form of primary tuberculosis, as both food and air must first pass over these structures before gaining access to the more interior organs, and I believe this is true. In a series of 1671 cases of hypertrophied tonsils, compiled from the published records of twenty-three authors, primary tonsillar tuberculosis was diagnosed in 88, that is 5.2 per cent. I found about the same proportion myself in perfectly unsuspected cases, where the tonsils had been removed by operation and were only casually examined. It would seem safe to assume that at least 5 per cent of children have tuberculosis of the tonsils.

Probably in the majority of cases on which these statistics were based the tonsils examined were removed because of their enlargement, and therefore one is hardly justified on that ground alone in giving 5 per cent as the frequency of tonsillar tuberculosis in all children. We must, however, remember that the size of the tonsil bears no relation to the liability of infection, except that its enlargement presents, as it were, a larger net to entrap the organisms. From my examination of tonsils from persons who had died from pulmonary tuberculosis, the hyperplastic tonsil is apparently more resistant to tuberculous infection than the small tonsil in which there was very little lymphatic tissue. This observation, however, is based upon too insufficient evidence to be accepted in any other light than a suggestive one.

While it is scarcely within the scope of this paper to treat with such a large and important subject as the method of infection in pulmonary tuberculosis, it may be allowable at this time to speak briefly concerning the liability to systemic infection from tuberculosis lesions in the tonsils. Cornet, in an elaborate series of experiments believes he has shown that the tubercle bacillus is capable of producing disease in any organ to which the germ gains access. If a given part of the body is inoculated the lesion develops locally, and is generally promulgated through the lymphatics to the nearest set of lymph nodes. The bacillus is arrested in these nodes and cannot proceed further until destruction of this barrier has been accomplished. When this resistance has been overcome then the infection proceeds to the next chain, and finally via the lymphatics to the venous system. The tonsils may be

described as differentiated lymph glands, but it is not probable that they possess the same filtering qualities as the lymph nodes. By rubbing a virulent culture of bovine tubercle bacilli on the surface of the tonsils of the hog, I once succeeded in finding the tubercle bacillus in the regionary lymph gland of the neck within five days after the inoculation, and no demonstrable change could be found in the tonsillar tissue. In this same series of experiments, I further found that histologic changes appeared as early in the cervical lymph node as in the tonsil. Further, we know from clinical experience how quickly the cervical nodes at the angle of the jaw become enlarged and tender during infection of the tonsil, and that for a long time this tenderness is confined to the first set of glands. Hence it is evident that tuberculosis of the tonsils would very likely show the same clinical course as that of tuberculosis of the cervical lymph nodes.

Recently, several articles have appeared concerning the possibility of infection of the apices of the pleura and of the bronchial and mediastinal lymph glands from the upper respiratory tract via the cervical lymph chains. Grober, in 1900, believed he succeeded by injecting the region of the tonsils in living animals with India ink in getting the pigment to travel via the cervical lymph glands to the pleural apices and to the bronchial lymph glands. Fleiner had previously stated that the supraclavicular glands were anatomically directly connected with the other cervical glands, that is the deep lateral chain, and were at the same time regionary to the pleural apices. The clinical support which Grober brings to substantiate his theory is chiefly that the statistics collected from five different observers show that in 14.3 per cent of cases with tuberculosis of the glands of the neck the pleura became involved. There is no doubt that Grober has done a great deal of valuable work in this connection, and from a mere perusal of his paper he seems justified in his conclusion that infection of the pleura may take place via the cervical lymph glands.

During the last year, an article has been published by Beitzke, going over this same subject very carefully, making both anatomical studies and experimental researches, also giving the data furnished by the post-mortem on 55 children. He directly opposes Grober's theory, and criticises his work, believing that his results do not justify his conclusions. His work has been most carefully carried out, and I quote his conclusions.

"1. There exists no lymph vessel leading from the chain of cervical lymph glands to the bronchial glands.

"2. Tuberculous infection of the lungs from the cervical lymph glands can take place only through the lymphatic trunk and the venous system.

"3. This path of infection, at least in children, is without any practical import. The infection of the lungs, and hence the bronchial glands, in children as a rule takes place through aspiration of the tubercle bacillus into the bronchi; a descending cervical tuberculosis may be present incidently.

"4. The aspirated bacilli may be in the respired air but they come from the mouth where they have gained access by food or by contact."

During the past winter I started a series of anatomical studies along the same line but unfortunately have not yet been able to complete them. The results I have so far obtained, however, support entirely Beitzke's claim concerning the connection between the supraclavicular lymph glands and those higher in the neck. On the other hand, in children the arrangement and number of the lymph nodes in the neck is very irregular, and the pleural apices come into fairly close relation not only with the supraclavicular glands but also with the extreme lower portion of the greater vessels of the neck. The deep lateral chain of the neck extends downward along these vessels, and if there should be a node situated in the lower part of the neck, as sometimes occurs, it is conceivable that tuberculosis of this node may infect the pleural apices directly by continuity of structure. It would seem, therefore, possible that the pleural apices may in some few cases be infected by descending tuberculosis of the lymph glands of the neck, but for the tonsillar lesion to reach this distance there are a great many lymph nodes which must first be broken down and overcome. However, Beitzke would probably be correct in the large majority of cases when he says that infection of the lungs may theoretically occur from the cervical lymph nodes but that it would almost always be a miliary lesion due to the entrance of the bacilli into the venous system via the jugular lymph trunk. Miliary infection of the lungs was the only pulmonary lesion in my experiments on hogs, and this occurred only after all the nodes of the cervical lymph chain were broken down.

Another very probable source of systemic infection from local disease of the tonsils, especially from the pharyngeal tonsil, may

come from the disintegration or breaking down of the tonsillar tissue and diseased portions being swallowed and inoculating the gastro-intestinal tract or the mesenteric glands. A lesion, however, to do this would not belong to the so-called latent type but must be ulcerative and hence recognizable.

To sum up these various conflicting views is somewhat difficult, but it seems to me that as a rule the clinical importance of a tuberculosis lesion in the tonsillar tissues of the throat is about the same as a local tuberculous lesion in any other non-vital portion of the body, which is separated from the internal organs by an intervening chain of lymph nodes.

The etiology of laryngeal tuberculosis has been so extensively discussed of late years that it is hardly worth while to enter upon this subject, especially as I know of no new facts to offer. Probably the best synopsis of the subject will be found in the last edition of Lake's Monograph on Laryngeal Phthisis. I would, however, like to call attention just to a few facts.

It is unquestionable that primary tuberculosis of the larynx has occurred though it is exceedingly rare. Aronsohn has collected 34 cases which he divided into three groups; in the first group, those in which post-mortem examination showed tuberculosis of the larynx without involvement of the lungs, only 3 have been reported; in the second group, there were 9 cases in which were found advanced or old disease of the larynx with recent infection of the lungs; and the last group, 2 cases in number, were based upon clinical examination only. In other words, there has been at the time of Aronsohn's paper only 3 cases reported in which the primary condition of the laryngeal lesion had been anything like proven. Lake says that the term "primary laryngeal tuberculosis" implies an original invasion of the larynx in the absence of any pulmonary phthisis, and does not, necessarily, exclude the presence of some such lesion as a tuberculous adenitis or otitis. To me it would seem better that by the term "primary involvement" it should be understood that the organ under discussion is the first in the body to show any lesion, and that the lesion must be termed secondary if it follows disease of some other organ, no matter how small or insignificant that organ may be. It is easily conceivable that the larynx may be infected from a tuberculous otitis, and such lesions should be placed under the secondary laryngeal infections and not looked upon as primary. Two such cases have been reported by Lake.

The method by which the tubercle bacillus gains a foothold in the laryngeal mucosa probably varies in different cases. In a very few cases the organism may penetrate through the unbroken epithelium, as demonstrated by Wright. It may enter through the gland-ducts, and this is probably the line of infection when the lesions begin in the ventricles. The erosions caused by the traumatism of cough and the constant irritations of large quantities of decomposed sputum may become infected with tubercle bacilli. This method of infection is probably the most common way in ulceration of the true vocal cords. Lake has found in the epithelium minute abscesses, which he believes might finally have become tuberculous. Briggs calls attention to the early erosions as marking the stage where simple catarrhal laryngitis becomes tuberculous. Be the method of penetration what it may, the essential element in the infection is the enormous and constant dosage to which the larynx is subjected.

129 S. 18th St.

The Surgical Reduction of the Excessively Large Ear. CHAS. C. MILLER, Chicago. *Med. Fortnightly*, July 25, 1907.

Dr. Miller asserts from experience that: "There is a demand for men capable of performing operations intended to improve the appearance, and in the regular profession I believe this is the only special field which is not overcrowded. So far as I can learn, I have the world to myself in this respect, and am the only surgeon who performs any considerable number of these operations." To perform any of the operations for reducing the enlarged ear infiltration is all that is required to render them painless, and is accomplished with a very weak cocain solution. The author describes and illustrates with cuts three operations: The crescent-shaped excision, the triangular excision, and the sickle-shaped excision. The last should be performed posteriorly, so that the skin anteriorly is not sacrificed. Essentially it is the excision of a sickle-shaped portion of the cartilage with the posterior part of the integument. It is, in short, a sort of sub-integument resection. All these operations are plainly illustrated by drawings, and the descriptions in the text are brief and clear.

EATON.

THE BANEFUL INFLUENCE OF PREGNANCY ON LARYNGEAL TUBERCULOSIS.*

BY WOLFF FREUDENTHAL, M.D., NEW YORK.

In bringing the above subject, which has been discussed so extensively abroad, to the attention of this large and experienced audience, it is not so much the desire of the writer to present his own observations, as to elicit a full discussion by all who have seen cases belonging to this category.

Right here permit me to mention one question, viz., that of primary tuberculosis of the larynx. While not denying the possibility¹ of a primary infection of the larynx, I shall eliminate it entirely from this paper solely to facilitate the discussion. Consequently we have to deal here with those cases of laryngeal tuberculosis which are associated with a pulmonary affection.

The first question that confronts us, is: Has pregnancy any influence in producing laryngeal tuberculosis in a person already afflicted with tuberculosis of the lungs? It is impossible to give a direct and satisfactory answer to that. Personally I believe that after the tuberculous virus has once gained entrance into the system (lungs) it is apt to form a new focus, wherever there is a *locus minoris resistentiae*. This law holds good for syphilis, carcinoma and other systemic diseases as well. Now if the larynx has been weakened previously by inflammatory attacks it will be more prone to become tuberculous at the slightest provocation. And gestation may well be considered such a factor. But a direct influence in causing laryngeal tuberculosis cannot be proven.

On the other hand, how is it, if laryngeal tuberculosis is already established? Has pregnancy then a deleterious effect? To this we must decidedly answer in the affirmative. Gestation can undoubtedly light up an old process that has practically been arrested, and it is a positive contributing cause in rendering worse an already existing one.

But let us consider for a moment certain physiological conditions belonging to pregnancy. With the growth of the foetus the mother requires not only nourishment for herself, but a constantly increasing supply for her offspring. Everyone is aware of the difficulty of nourishing any phthisical patient; how much more difficult is the

* Read before the Thirteenth Annual Meeting of the American Laryngological, Rhinological and Otological Society, New York City, May 30, 31, and June 1, 1907.

1. I say purposely "the possibility," altho I have never seen a primary tuberculosis of the larynx. The cases shown by others as well as some doubtful ones in my own practice have not convinced me that the lungs were free from tuberculous invasion.

task, if the maternal organism has to assimilate food for two instead of one being? Is it therefore, surprising that we so often fail in the attempt and that the pulmonary tuberculosis grows worse and with it, *pari passu*, the affection of the larynx?

Furthermore, with the growth of the child the abdomen expands and breathing becomes more difficult. Add to this some obstruction in the larynx, as for example perichondritis of the arytenoids, interarytenoid tumefactions, extensive infiltration of the vocal cords, etc., and you have a second factor that helps to impair both the general condition and with it that of the larynx as well.

During pregnancy there are certain other conditions that are not entirely physiological. They too have no beneficial influence upon tuberculosis, but on the contrary accelerate the process. Among these may be mentioned anemia, which here acts so perniciously, as well as a large variety of neuralgias.

A direct influence on laryngeal tuberculosis is exercised, however, by a symptom which is as painful, as it is deleterious, viz., vomiting. With each act of vomiting, which occurs more or less frequently in almost all women during the first months of pregnancy, there is marked irritation of any existing ulcerations in the larynx, with increase of the pain and dysphagia previously present. A similar, and more deleterious influence is exerted by the cough, whatever may be its source. It is easy to understand that under such circumstances the chances for a cure of any laryngeal affection are almost nil.

Occasionally paroxysms of coughing or vomiting are so severe as to induce premature labor. More often, if this does not occur, the patients get worse rapidly. If they survive the accouchement they die as a rule very quickly afterward. For though pregnancy is fraught with danger to the life of the phthisical mother, childbirth, according to all experience, is still more so. Few women with tuberculosis survive this period for any length of time, as the cardiac weakness consequent upon the loss of blood cannot be repaired. This is the experience of many observers, though not of all. Now while there are differences of opinion in regard to the purely pulmonary cases, the views are somewhat more uniform concerning the influence of pregnancy upon tuberculosis, if complicated by involvement of the larynx. "Whether pre-existing or developing in the course of gestation, this form of tuberculous affection is always markedly increased during pregnancy. This typical unfavorable development of the disease and the danger of suffocation, in case tracheotomy cannot be performed in time, has led

to the almost general acceptance of laryngeal tuberculosis as a positive indication for the artificial interruption of pregnancy." Thus speaks an obstetrician, H. Ehrenfest. (Peterson's Practice of Obstetrics, p. 346).

But do not let us dwell on the latter point as yet. First, we must answer the questions: What becomes of the mother, if we let gestation go on to the end of the normal period, and what becomes of the child? I have seen an unusually large number of such cases in my practice, in which the mother invariably died shortly after delivery, and the child in almost every instance. A gloomier outlook can, therefore, hardly be imagined, and the question of treatment was settled in my mind long ago. Great was my surprise, when, a few years ago, Professor A. Kuttner, of Berlin, took up the question and discussed it in that thorough manner we are accustomed to expect from him. Then it became evident that there was not such a unanimity of opinion as was believed before. K. gathered statistics from different sources and presents the following data: "* * * If we deduct from that number (100) three cases in which pregnancy was interrupted in the third or fourth month with beneficial result, only seven of the others survived the confinement, while all the rest succumbed quickly, following a deterioration of the laryngeal and pulmonary condition." These statistics furnish as bad a prognosis as my own. Nevertheless cases have been published, off and on, which were intended to show the fallacy of the rule first laid down by Kuttner. Thus Lennhoff exhibited a patient before the Berlin Laryngological Society who had survived childbirth and in whom the disease apparently did not run the usual fatal course. But at a later meeting of the same society Kuttner was able to show that even in this instance childbirth was the turning point for the worse. The woman ran down rapidly after confinement and the outlook was in no wise favorable.

Soon after I started here in practice, the first of these cases came under my observation. The patient died three days after giving birth to a dead child. The next case occurred a year later with the same result, only that the child was kept alive with the greatest effort for two years. And so it went on. In every instance the mother died, and, with one exception, the child, too, until I finally established the rule that to let such a woman carry her child to the full term would mean the death of both.

In my history books there are ten cases, but I am positive that during the last twenty-one years I have seen many more, per-

haps double that number. This may seem unusually large in the experience of one man, but it is probably due to my long connection with tuberculous hospitals in this city. It will not be necessary to give the histories of all in full, but three cases may suffice.

Case 1 (No. 2 in my statistics). Mrs. S., primipara, aet. 23, was seen by me in March, 1888. She was in the ninth month of pregnancy and suffered greatly from dysphagia. There were ulcerations on both vocal cords and the interarytenoid space. Both lungs were affected. Local treatment did not ameliorate the condition in the larynx, and at the normal end of gestation she gave birth to a dead child. Twelve days later she also died. There was no reason for inducing premature labor in this case, for it could not have saved the mother, as pregnancy was too far advanced.

Case 2 (6). Was seen in consultation with Dr. M. She was a sextipara and had acquired tuberculosis, apparently, before becoming pregnant. At least, cough had been present for some time. This was a wretched case. When I saw her first in October, 1885, she was in the fifth month and appeared quite weak. There was an infiltration of the right vocal cord, an ulcer on the anterior third of the left one, and the arytenoids showed oedema. Apparently only the right apex was tuberculous. For that reason I advised immediate resort to abortion, which was refused for religious reasons. Consequently the usual remedies were applied to the larynx, but the woman grew rapidly worse. When I was called in again five weeks later, the scene was almost tragic. To hear that wretched woman with her husky voice scold her family physician for not having treated her exactly as I had advised, and then begging his pardon, only to tell me a moment later that the whole medical profession did not know anything, and then again to pray of us to save her for the sake of her five little children, was pitiful, to say the least. One week later the Parcae cut the thread of her life.

Case 3 (8). A woman was brought at the close of her pregnancy to St. Mark's Hospital suffering from tuberculosis of one lung and of the larynx. In the latter there was a diffuse infiltration and a deep ulcer on the epiglottis. When I told the gentlemen present that, according to my experience, the prognosis *quoad vitam* was absolutely unfavorable, there was great surprise. On the sixteenth day after childbirth the woman died. The child, I hear, lived for several months. In this case, too, the interruption of pregnancy at such a late period would not have been of any benefit, but an early abortion might have saved the mother.

Such is the fate of the mother. How about the child? According to K., 72 to 73% of the children died immediately after birth or within a few weeks afterward. This is certainly a very low percentage, but still more perplexing are the statistics by Weinberg of Munich. Out of 321 children born alive, whose mothers died within a year, not less than 217 (67.9%) died in the first year. Of the 57 infants born alive, whose mothers died in the first twenty-eight days of the puerperium, as many as 37, or 78.8%, succumbed in the first year. And this apparently was the case with women afflicted only with pulmonary tuberculosis. In the presence of a complicating laryngeal tuberculosis, the prognosis for mother and child is so unfavorable that H. W. Freund¹ considers the former as the most important of all indications for the early interruption of pregnancy.

But there is another side to this question. Have we a moral right to sacrifice an unborn child in order to save a mother, whose life, as some maintain, is also doomed? This question has been asked me by physicians as well as laymen, and it is proper to answer it now.

In regard to the lives of children born of such mothers, the above statistics, which are supported by my own experience, speak a very clear and sad language. I recollect only one instance of a child that lived as long as two years. What became of it afterwards is unknown to me. As K. has shown, however, of those who survived for more than a year only a small percentage could be reared with the greatest care in well-to-do families, and even these children were weaklings.

What about the mothers? Is the percentage of deaths really equal 100%? Not in my experience, nor in that of others, when pregnancy is interrupted at an early stage. The reports on that point are meager, but every such case counts. Thus Levinger, of Munich, saw two cases. The first one which died in the puerperium, had a tuberculous tumor in the larynx that caused dyspnoea. Tracheotomy could not save the woman. In the second case, however, abortion was induced at the end of the fifth month, and the laryngeal tuberculosis was afterwards "permanently" cured, the lungs apparently, too.

The writer can report two cases that were saved.

Case 1 (No. 8 of my statistics). Mrs. F. M., aged about 30, mother of two very delicate children, was referred to me, on

1. Quoted from Gustav. Freitag's Inaug. Diss.: "Die kuenstliche Unterbrechung der Schwangerschaft wegen Tuberkulose." Breslau, 1906.

February 18, 1901, on account of pain in the left ear and persistent cough. The ear was normal, but there was an ulceration on the left ventricular band, and the upper lobe of the left lung was affected. Tubercle bacilli in the sputum. She was treated for several weeks and then left for Asheville, N. C. Afterwards she went to Germany, consulted Prof. v. Leube and other well-known men, and returned to this country at the end of 1902 greatly improved. I had warned her against conception, but upon the advice of a good friend she became pregnant, expecting in that way to get rid of all her trouble. Instead of this, the old laryngeal symptoms returned with renewed activity. When I saw her an immediate abortion was recommended, which was induced at the end of the third month of pregnancy by an obstetrician of this city. After that the larynx yielded to treatment again and was practically healed within six months. This lady is still living—it is now four years—although she had an attack of pleurisy two years ago. She is feeling so well that she has not consulted a physician for one year.

Case 2 (No. 10 of my statistics). Mrs. N. consulted me while in the fourth month of pregnancy. For several weeks she had been hoarse and felt a constant irritation in her throat. The aryepiglottic folds were swollen and injected, so were the ventricular bands. Right vocal cord serrated; t. b. c. of both apices; tubercle bacilli in the sputum. Immediate interruption of pregnancy was advised, and this was done within six days. Three weeks later the patient went to the mountains, where she stayed a year and a half. Since October, 1903, i. e., more than three years, she has been back in New York City enjoying comfortable health.

These two cases demonstrate that a cure, or, let us say, a relative cure, does occur after the induction of a premature labor. These women have been restored to their families and are able to enjoy life once more.

Similar was the experience of de Bruine Ploos van Amstel, who, in a very elaborate paper on "Phthisis pulmonum and abortus provocatus" (*Beitragte z. Klinik der Tub.*, Bd. 7, 1907), reaches the conclusion that the less far advanced tuberculosis is in a gravida the more urgent is the indication to interrupt pregnancy in the interest of the mother; in that way the possibility of saving a relatively healthy woman is the greatest.

Before laying down a general rule, however, in regard to the artificial interruption of pregnancy, I asked several prominent obstetricians of this city for their opinion. It is remarkable to note

how very few cases of laryngeal tuberculosis had been observed by these gentlemen in spite of their enormous experience in obstetrical work.

Thus, Dr. J. W. Markoe, in an experience of sixteen years at the Lying-In Hospital, during which time 49,000 women had been confined, does not recollect one such instance. The fact is that such cases consult the laryngologist rather than the obstetrician, and, furthermore, they are not admitted to hospitals.

Dr. J. Clifton Edgar remembers only one case that lived a short time after delivery at the fortieth week.

Dr. S. Marx reports the following cases:

Case 1. A well-known singer, pregnant in the third month, showed incipient pulmonary tuberculosis and "ulcerations in the larynx." Abortion was induced and the patient afterwards sent away. She is living now in this city in full possession of her health and voice. The abortion occurred six years ago.

Case 2. Young woman, very similarly affected as the former, died within six weeks after confinement at the regular time. Dr. Marx makes it a practice to induce abortion as early as he can.

Dr. J. B. Cragin writes: "In reply * * * would say that in the last 8,000 deliveries at the Sloane Hospital we have had 13 cases of tuberculosis, but in none of these was there any special laryngeal involvement. This may be accounted for by the fact that we do not usually take into the hospital cases with active tubercular inflammation. I remember delivering only one woman with marked laryngeal tuberculosis, and she died within a few months following her confinement."

All these colleagues, and a few more consulted by me, advise immediate interruption of pregnancy, if the case be seen early. If seen late, they generally wait in the interest of the child.

It seems to be the general opinion that the tubercular process is greatly stimulated by gestation and labor. Only Austin Flint, Jr., has seen a few cases improve during pregnancy "by ordinary anti-tubercular treatment." This we must consider as a decided exception, as it is not in accord with what others have observed. Still such cases ought to be recorded in full, if the above question is ever to be settled definitely.

In going over the literature, we come across several other cases improved during pregnancy and after delivery, even without any treatment whatsoever. It must be repeated, however, that in most of these it has not been proven satisfactorily that the laryngeal affection really was tuberculous. A slight swelling here or there

or a redness in a consumptive patient, while certainly to be treated with every care, is no positive symptom of laryngeal tuberculosis, and for that reason should not be considered an indication for the interruption of pregnancy. All of my cases were, unfortunately, of such advanced type that the diagnosis could not be doubted for a moment.

But is there nothing that can be done for such patients excepting the artificial interruption of pregnancy? The usual remedies that leave us in the lurch so often are even less reliable here. The disease makes rapid progress, and the only thing left to do in some instances is tracheotomy as an *indicatio vitalis*. Kuttner seems to think favorably of the latter, even as a means of cure in some cases. I am not so optimistic, but would rather reserve tracheotomy for such patients who present marked dyspnoea. Then it will be a life-saving means for the time and no more.

In all other cases, however, especially those showing a diffuse tubercular affection of the larynx, we have to fall back to an early interruption of pregnancy as the only means of saving the life of the mother.

There are some exceptions to this rule. If a woman is first seen at the end of pregnancy, then a few weeks make no difference, and it is best to wait in the interest of the child. Otherwise the life of the child can be regarded as a negligible factor, since it is lost, anyway, in almost every instance.

Furthermore, if the progress of the disease is so rapid that we are positive the mother will die shortly, then, too, it is useless to induce premature labor. But these cases should be weighed very carefully, since nothing is so surprising as irregularities in the course of tuberculosis. Patients sometimes recover in a marvelous way, while others succumb as unexpectedly.

The medico-legal side of this question has been ably discussed by K. and several prominent jurists abroad, but I do not feel inclined to enter into it here. It seems hardly possible that any judge in this or any other country would condemn a physician because he acted in the purest interest of his patient, of humanity, and often even to his own detriment, when he advocated an early interruption of pregnancy as the only possible salvation for the mother.

For that reason, it is so much the more our duty to be extremely careful in making a diagnosis and in advising our patients what to do in such a dilemma.

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TUBERCULOSIS OF THE LARYNX AND PREGNANCY.

BY PROF. DR. A. KUTTNER, BERLIN, GERMANY.

It was just six years ago, on the occasion of the meeting of German Natural Scientists in Hamburg, that I called your attention to the extremely pernicious influence of pregnancy upon tuberculosis of the larynx. As the material at my disposal at that time was much too small to draw final conclusions from it, I published a request in several periodicals for the report of cases that would be likely to throw some light on the subject. This request met with gratifying response from many sides, so that as early as two years ago, at the time of the first meeting of the German Laryngological Society in Heidelberg, I was enabled to submit a report of about 100 critically examined cases. This is a considerable number when the relative rarity of such cases is considered and should be sufficient to furnish enlightenment on many points, though not on all. For notwithstanding the actually alarming similarity of outcome in most of these cases, the authors could not come to any agreement at that time, nor can they today, on the question which is really the most important, namely, whether and under what conditions tuberculosis of the larynx would indicate the advisability of interruption of pregnancy. On this account our Society, on the motion of the Chairman, requested me at the meeting in Heidelberg to furnish an introduction to a renewed discussion by preparing an article on this subject in collaboration with Dr. Löhnberg.

This new material, which has meanwhile been published, includes 231 cases, the histories of part of which are given in detail, whereas some authors as, for instance, Jurasz and Freudenthal, give a more summary account of their experiences. Of these 231 women an even 200 died during pregnancy or shortly after confinement; only in single cases, as in that reported by Lennhoff, did the patient survive confinement from six to nine months. But there is no doubt that in these cases also pregnancy formed the turning point in the fate of the patient; during this period the changes took place which were the beginning of the end.

Only 16 women passed this crisis safely; and 3 of these survived confinement only 1 to 1½ years. Induced abortion saved 9, induced premature birth in the seventh month, 1; tracheotomy preserved the life of 4, two of which died after about 1 to 1½ years. In this pic-

ture, composed of the experiences of various authors, gathered in various sections of the globe and under varying conditions, one record stands out as entirely different from the others, that of Barthas. He has collected 14 cases, of which, as he says, 7, that is 50 per cent, have survived confinement. These statistics contrast so markedly with the statements of the other authors and myself, which fix the mortality in the cases observed by us at about 90 per cent, that, if the estimation of mortality at 50 per cent be correct, all our previously drawn prognostic and therapeutic conclusions would be upset. The seriousness of the matter, where human lives are always at stake, demands a most careful examination of the presented material. The statistical compilation of a large number of single cases forms the only grading line for our therapeutic decisions, and erroneous premises would lead to conclusions involving the most deplorable consequences.

I would prefer to disregard the objection which has been raised that Barthas' cases are so few in number that accident might have played a considerable part. For even though only 7 out of 14 cases that actually belong to this statistical group have indeed passed through pregnancy and confinement satisfactorily, we would be obliged to revise our present opinion very thoroughly notwithstanding this small number. But after careful examination of Barthas' cases I have come to the conclusion that they, in contrast to the statements of the author himself, only serve to corroborate our view of the situation.

Of the 14 cases which Barthas reports, Nos. 1, 4, 7, 10 and 14 died, according to his own statements, directly or shortly after confinement; Case 10 was dismissed from the dispensary seven weeks after confinement in, as Barthas says, hopeless condition. Though further information concerning this patient is wanting, we are probably justified in assuming as beyond a doubt that she also died at the latest a few weeks after her dismissal. Accordingly we have 6 cases with fatal termination.

Of the remaining 8 cases, among whom, according to Barthas' calculation, 6 of the "surviving" patients are numbered, not one is of any value for our statistics, in my opinion. I am aware that what I am saying implies a severe criticism, but the importance of the matter demands uncompromising clearness.

According to Barthas' record, cases 2 and 9 have been examined only once in the fourth and seventh month respectively. What course pregnancy and birth have taken, what became of the mother

or the child in each case, is not known to the author. It is evident that both cases cannot be used for our statistics.

Quite similar are the circumstances in case 6. We learn that a tripara of twenty-years presented herself at the dispensary November 12th, 1903, somewhat hoarse. She stated that this hoarseness had commenced with the beginning of her last pregnancy. Examination revealed that the left vocal cord was infiltrated, especially in the most anterior part. Eighteen days later, on December 1st, these symptoms were somewhat more pronounced. ("The lesions have developed and the left cord appears thick and granular.") Here also not a word concerning further development of the case, no information telling us in what month of pregnancy the patient came to the dispensary, whether and when she was confined, how she stood the confinement, etc. How can this history possibly be used in the sense in which Barthas has used it? It is not even known whether the patient lived up to the time of confinement.

Case 3 was examined only once in the seventh month, and showed a slight infiltration of the vocal cords and the posterior wall of the larynx; the hoarseness had begun in the sixth month, the lungs seemed to be free. ("A little infiltration of the cords and of the interarytenoid region is seen. The apices appear free.") It will be conceded that this record is rather too insufficient to build a reliable diagnosis thereon. But even more important is the fact that nothing more is known of the further course of this history than that in a normal birth a normal child had come into the world. And here again not one word to indicate whether this assuredly very uncertain diagnosis has later been confirmed, nothing to inform us of the fate of mother and child, although, as we all know, just the time immediately following confinement is the most portentous. If our informants had also been satisfied with the information that the confinement had been normal, and had left off their observations at this point, then we would probably have a different, but surely not a correct impression of the matter.

Case 8 does not belong in these statistics at all, as the laryngeal affection began not during pregnancy, but after confinement.

In Case 5 the right apex was found "*en première période*." Hoarseness of a year's duration had increased since the third month of pregnancy. The larynx shows "a swelling of the arytenoid to the anterior face of which is attached a vegetation in the form of a papilloma almost completely filling the larynx," Notwithstanding this tumor which filled the larynx almost entirely, pregnancy and con-

finement took a normal course. Immediately after the confinement this tumor disappeared, seemingly without any treatment whatever, only a thickening in the posterior wall and hoarseness calling to mind the former condition. This case, also, does not belong to our statistics, to my thinking, for this is not a case of diffuse laryngeal tuberculosis, which we have made the subject of our discussions, but either a tuberculous tumor—and these are not malignant, as I have been able to prove on several occasions—or else the entire laryngeal affection was not of tuberculous nature at all, but only a sequela of impaired circulation, which we have so often occasion to observe during pregnancy, even in healthy women.

In Cases 12 and 13, the larynx had never been examined at all; furthermore, the observations were discontinued on the tenth and eighth day respectively. Who will guarantee to us that these women were not both dead fourteen days later? Apart from this, however, I must object against the classification of these two cases as tuberculosis of the larynx without any local examination. Barthas rests upon an authority like Dieulafois, who is of the opinion that so-called catarrhal laryngitis in tuberculous subjects is nearly always of a tuberculous nature. I readily admit that the diagnosis of catarrhal laryngitis in cases where tuberculous affection of the lungs exists, may quite often be erroneous owing to insufficient examination, and that the symptoms of inflammation in many such cases might be traced back to the invasion of tubercle bacilli, representing veritable tuberculous laryngitis. But it surely is not so in every case; it must not be forgotten that in many tuberculous subjects the upper air-passages are more susceptible than in healthy individuals, that under the influence of climatic conditions, of air filled with dust and smoke, strenuous use of the voice, and similar injurious agencies, very often symptoms of inflammation are produced that have nothing to do with tuberculous infection. On the basis of these reflections, I cannot permit two patients to be counted in our statistics as "surviving" in whom no tubercle bacilli were found, where the condition of the lungs had not even been definitely determined (Of one it is recorded: "The right apex is suspicious"), where no laryngoscopic examination has ever been made, where, in fact, the diagnosis is based only upon the evidence of hoarseness in the patient. To this must be added that in both cases observation was discontinued prematurely.

So we see that after detailed investigation Barthas' compilation presents quite a different aspect; for our statistics it does not give,

as Barthas says, 14 cases of which 7, that is 50 per cent, stood confinement well, but it contains only six cases that are at all to be used for our purposes, and of these 6 cases 5 died previous to or shortly after confinement, and the 6th was dismissed from the dispensary in a hopeless condition seven weeks after delivery.

In view of this post-examination of Barthas' report I must again point out, as I have already done in my previous communications, how great is the danger that the question bears a more favorable aspect in our statistical compilations than is warranted by facts and reality.

The reality of the cases of fatal termination, be it mother, or child, cannot be disputed. In rare instances it may happen, as in Rosthorn's third case, that the direct cause of death is affection of the lungs rather than of the larynx. On the other hand, some cases may have been easily numbered among the "surviving" where observation was discontinued prematurely, or where, perhaps, the diagnosis was erroneous. And how easily can an erroneous diagnosis be made! We all know that often, even in perfectly healthy women, injection, swelling and oedema of the mucous membrane are evident during pregnancy, and they are absolutely harmless aside from their purely mechanical effects, usually disappearing after delivery without leaving a trace. How easy it is to erroneously diagnose such a laryngeal picture as tuberculosis of the larynx, if it be found in a tuberculous pregnant woman, thus giving us one more case of favorable termination!

Likewise Scanes Spicer, in a session of the London Laryngological Society, where Ch. Parker, H. Tilley, L. Lack and Cl. Beale reported one favorable case each, expressed his doubts regarding the correctness of the diagnosis. As I could not form a personal judgment from the very brief reports of these informants, I have entered all these cases under the head "favorable termination," even though our statistics may be made to appear more auspicious than conforms with reality. Aside from this, however, the remarks of Scanes Spicer and Felix Semon show beyond a doubt that our London colleagues are not inclined to be sanguine regarding the chances of such patients.

I must also refer briefly to a few statistics of Dr. Betz of Mainz. He was so kind as to place his observations of 9 new cases at my disposal, which, with the three that have already been published in my latest compilation, makes a total of 12 cases observed by him. The results obtained by Dr. Betz in single cases are extraordinarily

favorable. Of his 12 patients two were improved to such an extent that one lived one year and seven months, the other, three to four years after confinement. Three more women did not show signs of laryngeal affection until the last three to six weeks before delivery, and the symptoms had not developed very much in the short time preceding confinement, so that the one lived about one year longer while the two others are even now alive and in relatively good condition, 13 and 30 months respectively after delivery. In one case where affection of the larynx was in evidence as early as the second month, Dr. Betz was able to improve the conditions so far that the patient did not succumb to the tuberculous infection until after several years.

These statistics fit well into the frame of our previously formed conceptions, notwithstanding the relatively favorable results; they show that in occasional cases a patient that is almost despaired of may be saved by tracheotomy. They show further that a tuberculous affection of the larynx developing in the latter period of pregnancy is not so very formidable, also, that one among 12 women was so fortunate as to overcome the threatening danger by her own strength. It should be mentioned that this one as well as the other women who stood confinement well were in good circumstances, so that they could avoid every injurious influence, and in some cases await their time in health resorts under the best imaginable conditions.

As with the mothers, so are the conditions in the estimation of mortality of the children. Many a child is being counted as "living" that has been lost sight of a few days or weeks after birth, although it is a recognized fact that a large proportion of these children succumb in the first years of life due to want of vitality. And it stands to reason that even after the first years of childhood have been happily passed, the death-ratio will be relatively large, so that only a small fraction will reach adolescence.

But it seems to me that the principle which alone can form the theme of our discussions is not affected by an increase of one or two per cent in our statistics, be it favorable or otherwise. The compilation of the experiences which have so far been gathered by the different authors under widely differing conditions, and which are embodied in the 230 cases more or less, so far reported, proves beyond a doubt the enormous mortality (more than 90 per cent) in cases where diffuse laryngeal tuberculosis is complicated by pregnancy, and likewise, that the death-ratio of the children that are

born under these conditions is frightfully large, though not so large as that of the mothers. Even though, for obvious reasons, it is difficult to get reliable information concerning the mortality of these children, it is safe to assume that barely 30 to 40 per cent reach adolescence able to work. I would remind you once again that these figures are taken from among the less fortunate, from those classes of society where tuberculosis is endemic. Under favorable conditions, the prognosis for the mother is somewhat better, for child considerably so.

Since the new cases, as we have seen, serve only to corroborate the former experiences, the conclusions of most of the authors also proceed in about the same directions as the theses which I have laid down in my former articles on the subject. The following conclusions might meet with general approbation:

(1) The complication of laryngeal tuberculosis and pregnancy is of relatively rare occurrence.

(2) Diffuse tuberculosis of the larynx during pregnancy indicates a most unfavorable prognosis. The later the first symptoms appear, the better the prognosis, *cacteris paribus*.

(3) Infantile mortality is exceedingly great in cases where the mother has suffered from laryngeal tuberculosis during pregnancy.

(4) Among the wealthy, the prognosis for the mother is somewhat more favorable, for the child markedly so.

(5) Local and general therapie, as treatment in a sanatorium, may now and then meet with success, especially in mild cases. In a serious affection, however, such as is met with in by far the larger number of cases, the said termination of the disease is averted only very rarely by this means.

(6) Tubercular tumors of the larynx are relatively harmless and show no tendency to develop into a diffuse infection during pregnancy.

Up to this point, all authors are of one mind, so far as I can see. Another point, which heretofore has been doubtful, is brought into clear light by this new compilation. Even two years ago, when asked whether artificial interruption of pregnancy in cases where it is indicated actually gives back life and health to the patients, I was obliged to reply very modestly that only six such observations had been recorded, only three of which had met with the desired success. Since then, however, six more cases have been added, and also a report of an induced premature birth in the middle of the seventh month, which, I presume, might be counted in this connection, and

in all these seven cases the result was good. I know well that these figures are not overwhelming; but not one failure stands against these last seven successful attempts, and if of the 13 women whose pregnancy was interrupted 10 were saved, I believe it may safely be affirmed that only professional intervention saved the life of at least some of these patients. And if Dr. Pinard of Paris has said at the Congress of Gynecologists in Rome: "If there is a single fact which clearly shows that the premature expulsion of the product of conception has retarded the progress of the disease and the fatal termination I do not know of it," then he will, perhaps, acknowledge these figures as the "fact" which has been wanting, and revise his former opinion. Upon the whole, gentlemen, it seems to me that the chief import of our debate lies in the fact that we laryngologists more than others are called upon to take a leading part in the discussion concerning the justification of induced abortion in the different ailments. For in no other intercurrent disease, neither in tuberculosis of the lungs nor in affections of the heart or kidneys, do we find a death-ratio even approximately as large as in laryngeal tuberculosis, and in no other field, for this very reason, are the conditions so ascertainable and uniform.

First of all, however, we must ourselves be in accord on this point, and as yet the opinions differ widely concerning the question whether and under what conditions pregnancy in cases of diffuse laryngeal tuberculosis may be interrupted. In my previous expositions I have always been governed by the thought that in all our oral and written debates our endeavors would have to be simply to establish certain theoretical principles, an extract of the collected material, as it were, which would serve as an approximate guiding-line in our practice. To deduce a binding obligation for single cases from our statistics has been far from my intention. It is evident that here as in all similar situations each case demands individual diagnosis and, accordingly, individual treatment, which must occasionally depart from the general scheme.

I wish to be understood in this sense when I arrange in three divisions all the cases that concern us in this connection.

(1) The first division includes all those cases where every attempt to save the mother seems likely to meet with failure from the first. Here, of course, no one will think of inducing abortion, but the rather of delaying confinement as much as possible toward the normal termination of pregnancy, in the interest of the child.

(2) The second division contains all those cases where the laryngeal affection is so insignificant, and the general state of the

patient so favorable, that it is safe to infer that the woman will not be harmed irreparably by the continuation of pregnancy. I should not consider simple redness and swelling of the vocal cords, a moderate infiltration of the posterior wall, a slight loss of substance here and there, in other words, a circumscribed, altogether superficial tubercular infection, as a sufficient reason for the induction of abortion. Experience teaches us that such infection remains stationary in many cases. It is evident that these inconspicuous cases must be watched and treated with great care, as further encroachment of the infectious process may necessitate energetic intervention without loss of time. Likewise, matters are relatively favorable when the affection of the larynx develops toward the latter period of pregnancy. Even larger areas of infection, though they may cause considerable pain in deglutition, may be reduced after confinement if the general condition be propitious, as Betz's cases show, provided that the derangements caused by the laryngeal affection are not of too long duration. In this connection it must also be considered that in an affection during the last months of pregnancy the procedure to be decided upon would not be an abortion but a premature birth, and this, as is well known, taxes the powers of resistance in a woman's organism to a very great extent, so that all of the reported cases ended fatally, with one exception, and in that the foetus was of 6½ months. Again, it happens now and then in a case where a serious affection of the larynx develops near the beginning or toward the middle of the period of gestation, that the patient improves so much after the termination of pregnancy that she lives for years afterwards in the enjoyment of her ordinary activities. For the report of such cases, proved beyond a doubt, we are indebted to Landgraf, Seiffert, Betz, and several others.

(3) The third division takes in those cases where laryngeal tuberculosis with a tendency to increase exists during the first half of pregnancy. Experience teaches us that such cases, as a rule, become so much worse during gestation that only an exceedingly small proportion (less than 10 per cent) survives the heavy strain of pregnancy and birth. In view of these facts, we must ask ourselves whether we are justified in the early interruption of gestation in these women when we are convinced that in the course of pregnancy they would succumb to the progressing laryngeal tuberculosis, while a premature interruption of gestation offers well-founded possibilities of a cure or at least of a gratifying improvement of their condition.

Hardly one of my colleagues, I believe, will refuse to agree to these propositions which are based on principle only and, therefore, somewhat theoretical. Even the law could not regard an abortion undertaken on account of such considerations as a criminal action, as I have shown in my last publication, though it may be conceded that a somewhat more exact wording would be desirable for the legal paragraph in question. That there are still people, here and there, as Freudenthal and I have shown, who from religious scruples take the standpoint that matters should be allowed to take their course in all things, who would rather see a mother die in agony without lifting a finger than sacrifice the child—that is certainly most deplorable, but our deliberations from the standpoint of duty cannot possibly be influenced by this evidence of ultraconservatism.

But our beautiful unanimity is at once broken when we attempt to put our theories into practice. If it could always be predicted with certainty that this patient will bear pregnancy and confinement well in her own strength, and that one will surely be lost without our intervention, then indeed it were easy to come to a decision. But the prognosis is so very difficult in these cases! It is so hard to say whether a patient will really be saved by means of premature interruption of pregnancy, and if she be saved, then again we are beset with doubt whether, perhaps, the same result might not have been attained without our intervention.

Here, and this is quite natural, everyone prefers to be guided by his own experience, be it ever so small. One has seen a case which took a favorable course against all expectation, and accordingly he is inclined to limit the indications for induced abortion as much as possible. Another saw a promising life, seemingly in perfect health up to the time of conception, waste away in a few weeks after the commencement of pregnancy, and he now demands most energetically the immediate interruption of pregnancy in every case where improvement is at all possible. Thus have the conclusions offered in my last discourse been attacked from different sides; this one considered them too moderate, that one too radical. And yet I believe to this day, after I have read all publications relating to this subject, studied again and again all plans that have been advanced and tested their foundations, that everyone must reach my other conclusions who contemplates the question as a whole irrespective of the changeful destinies in single instances. As we have seen in more than 200 cases, for women suffering from diffuse laryngeal tuberculosis the commencement of gestation is equal to a death warrant

in more than 90 per cent. But these women have a right to live, notwithstanding the fact that they are with child, and especially as more than half of the children born under such conditions die prematurely. And since induced interruption of pregnancy provides us with a means that is likely to avert the peril under definite pre-suppositions, I consider it our duty from a professional as well as a theoretical standpoint to recognize tuberculosis of the larynx during gestation as a sufficient indication to justify induced abortion under certain conditions.

This statement is certainly not intended to assert that in every single case not yet despaired of abortion should and must be induced. Such an assertion would be justifiable only if the mortality were 100 per cent. This, however, is not the case; instead, experience proves that in single instances the mother's life is saved without sacrificing the child, and for this reason it is our undeniable duty to look for this possibility and to preserve the life of mother and child if it can be done. I know how very difficult it is to do the right thing in every case; indeed, it would almost seem as though the rule is here that "the unexpected always happens." At one time we see a woman whose larynx is seriously affected at the beginning of gestation overcome all dangers contrary to expectation, and another time an affection which at its rise did not seem to be worthy of notice becomes threatening in the course of pregnancy, and what is worst, meanwhile the time that would have been of so much value has gone and the life entrusted to our care is hopelessly lost. Verily, gentlemen, a grave responsibility is laid on our shoulders. But when de Bruine Ploos van Amstel claims in his otherwise excellent dissertation that I do not make it easy to arrive at a decision, he is in error. Not I am the cause of these difficulties, they lie in the circumstances themselves; and to deny them or circumvent them by a general decree does not take them out of existence. To my thinking, it would be a grievous mistake if we should decree that, in view of the sad results of our statistical investigations, abortion shall be induced in every pregnant woman suffering from laryngeal tuberculosis, where the affection seems capable of improvement. We must not generalize, but individualize. Difficult as it may be, we must make an effort to save the child whenever the life of the mother can be preserved without interruption of pregnancy. The general health of the patient, the degree of her vigor, the results of examination of lungs and larynx, the history of her illness to date and the history of illness occurring among her blood-relations, also the

pecuniary circumstances of the patient, all these and many similar considerations must help us to come to a decision. I admit readily that in spite of all precautions and care, mistakes and disappointments will be our lot; but will they not also be experienced by those who either demand or reject abortion generally? And therefore, as I said in my last publication, I believe that we will best meet our professional and ethical obligations in this dubious position if we recognize tuberculosis of the larynx as a justifiable indication for interrupting gestation, with the restriction that it is only permissible when, under the circumstances, it offers the only means and at the same time a decided probability for the saving of the mother.

That it is our duty, under these conditions, to warn every woman suffering from laryngeal tuberculosis of the grave danger which is connected with pregnancy in her case, I have stated repeatedly. And as is proven by experience, not only those women are in danger whose larynx is in a state of active infection at the time, but even where the process has run its course and the larynx had been sound for years, it has been found quite frequently, though not in every case, that with the commencement of gestation the larynx became again diseased. We will also have to caution these patients to be extremely careful.

This thought has been expressed recently by Drs. E. Baumgarten of Budapest and Betz of Mainz in special communications to me. Dr. Baumgarten desires that, in view of the exceedingly sad conditions prevailing, the Deutsche Laryngologische Gesellschaft adopt a resolution and send it to all societies, associations, etc., that are interested in this question, to the end that enlightenment and information may be carried into the widest possible circles. For purely business reasons it has not been feasible for the Deutsche Laryngologische Gesellschaft to carry out this plan, although the proposition met with fullest approbation. Personally, I would have rejoiced if it had been possible to take up this motion of Dr. Baumgarten in an effective manner, for I know from my own experience that these facts, so familiar to us laryngologists, are but very little known at large. Dr. Betz, proceeding in the same line of reflection, advises tubal closure in endangered subjects to afford them effective protection.

Recently the question has been again much discussed why pregnancy has such especially unfavorable influence on the development of tubercular affections of the larynx. Barthas is of the opinion that here the physiological relation between the female genital apparatus and the larynx is a decisive factor. However, I do not

believe that this supposition is correct. Would we not have to expect a much more frequent affection of the larynx considering the large number of impregnated women with diseased lungs? Yet obstetricians with large practice affirm that tubercular affection of the larynx has been but very rarely observed by them among hundreds of pregnant consumptives. I believe, rather, that the alterations in the entire organism connected with every gestation, the changes in circulation and respiration, weakening in consequence of vomiting, insufficient nutrition, inadequate sleep, are to be considered as predisposing factors for the affection of the larynx; and if pregnancy has a deleterious effect in cases of laryngeal tuberculosis so much oftener than in any other disease, the reason is probably to be found solely in the local conditions of the infected area.

RESUME.

Of about 230 pregnant women suffering from diffuse laryngeal tuberculosis, three survived a natural confinement for one to one and one-half years, and thirteen for a longer period, in all sixteen, or seven or eight per cent.

Among these sixteen women are several in whom the laryngeal affection did not commence until the latter part of the period of gestation. Nearly all surviving subjects belonged to the wealthier classes.

Artificial abortion was induced in twelve cases; in nine with good results, in three without success. Induced premature birth was attempted in seven cases, in one (middle of the seventh month) with, in six without success.

Tracheotomy, or laryngo-fissure respectively, was performed fifteen times. Two of these women survived confinement one to one and one-half years, two still longer, while eleven died soon afterwards.

Of these 230 women about 200 died previous to or shortly after confinement, either without professional intervention or notwithstanding it.

Of 116 children concerning whom we have information, seventy-nine or eighty per cent are reported dead; eighteen as living at birth, or in the first two years; nineteen as living a longer time; in all thirty-seven or thirty-two per cent.

In wealthy families the mortality of the children was less than among the poor; likewise do the chances for the child seem better when the mother's life is saved.

Number	Name of Author	Publication	Number of		Induced Abortion		Induced Premature Birth		Tracheotomy or Laryngotomies		Mo	
			Reported Cases	Recorded Cases	Favorable	Died	Favorable	Died	Favorable	Died	Living	?
1	Earlier cases collected by A. Kuttner.	Berl. klin. Wchschr. 1905, Nr. 29; Vrhdlg. d. D. laryng. Ges. 1905.	cir. 100	cir. 100	3	3		4	4	11	4	
2	Pradella	J. D., Basel 1906.	3	3	2		1					
3	Frischbier	J. D., Freiburg i. B. 1906.	5	5								
4	Felix	Annales des maladies de l'oreille, etc. 1906, no. 2.	2	2							1	
5	Freudenthal	Ztschr. f. Tuberkulose etc. Bd. XI, Heft 5.	26	26	2							
6	Clifton, Edgar	Ibidem.	1	1								
7	Marx	Ibidem.	2	2	1							
8	Löhnberg ¹⁾	Private communication	4	3								
9	Levinger ²⁾	Münch. med. Wchschr. 1906, Nr. 23.	2	2			1 ⁴⁾					
10	"	Private communication	1	1								
11	Betz ³⁾	Private communication	9	9							3	
12	Reiche	Münch. med. Wchschr. 1905, Nr. 28.	9	9								
13	Cohn-Bromberg	Private communication	1	1								
14	Kuttner, A.	Vrhdlg. d. Berl. laryng. Ges. 1905, 20. Jan.	1	1								
15	Alexander	Ibidem.	1	1								
16	Ed. Meyer	Ibidem.	1	1				1				
17	Rosenberg, A.	Ibidem.	2	2								
18	Veit, J.	Therapie d. Gegenwart, 1906, p. 481.	3	3								
19	Lennhof	Vrhdlg. d. Berl. laryng. Ges. 1906.	1	1								
20	Ch. Parker H. Tilley L. Lack Cl. Beale	Intern. Centralbl. f. Laryngol. etc. 1906, p. 31 u. 32.	4	4							4	
21	Rosthorn ⁵⁾	Mitschr. f. Geburtsh. u. Gynäk. Bd. 23, p. 581.	3	2								
22	Jurasz	Ibidem, p. 731.	37	37							1	
23	Koppe	Centralbl. f. Gynäk. 1887, p. 153.	1	1								
24	Lomer	Frauenarzt, 1904.	1	1								
25	H. W. Freund	Winckels Hdbch. d. Geburtsh. Bd. 2, Tl. 1, p. 556.	4	4	1							
26	Barthas, E.	Thèse de Paris, 1906.	14	6								
27	J. B. Cragin	s. Freudenthal, Nr. 5.	1	1								
28	Kollege K.	Ibidem.	1	1								
			240	230	9	3	1	6	4	11	13	

1. One case not under observation up to the time of confinement.

2. The death of the one patient was caused by a tuberculous laryngeal tumor.

3. Of the new cases reported by Betz, four have taken a very favorable course. (This is mentioned in my last publication.) In three of the new cases the affection of the larynx developed month respectively; these women were all of the wealthy classes.

4. In the middle of the seventh month.

5. In the third case, also dead, the larynx-diagnosis was doubtful.

Number of Recorded Cases	Induced Abortion		Induced Premature Birth		Tracheotomy or Laryngofiss.		Mother				
	Favorable	Died	Favorable	Died	Favorable	Died	Living	?	Died before or directly after birth.	Died after some time	?
cir. 100	3	3		4	4	11	4		cir. 9		
3	2			1							
5									5		
2							1		1		
26	2								24		
1									1		
2	1								1		
3									3		
2			1 ⁴⁾						1		
1									1		
9							3		5	1	
9									9		
1									1		
1									1		
1				1					1		
2									2		
3									3		
1										1	
4							4				
2									2		
37							1		36		
1									1		
1									1		
6	1								3		
6									5	1	
1									1		
1									1		
230	9	3	1	6	4	11	13		199	3	

up to the time of confinement.

caused by a tuberculous laryngeal tumor.

z, four have taken a very favorable course. (Three previous ones
of the new cases the affection of the larynx developed in the eighth

of the wealthy classes.

th.

larynx-diagnosis was doubtful.

Died after some time	Child			
	?	Living	Living at birth	Total
		12	16	42
				2
				24
			1	1
1	4	1		4
				1
				1
1				
1				
		1		
3		19	18	79

previous ones are men-
on the eighth and ninth

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W. Lutzoplatz 6.

HISTOLOGICAL EXAMINATION OF A WINDOW RESECTED SEPTUM.

BY JOSEPH C. BECK, M.D., CHICAGO, ILLINOIS.

A much mooted question in connection with the subject of this operation is, Does the cartilage and bone regenerate after the resection between the two muco-perichondrial flaps? Freer claims that it does, and his reason is purely from clinical observation of palpating by means of a probe. Carter makes a similar statement. Quain's Anatomy, on the regeneration of cartilage, says: "When a portion of cartilage is removed either surgically or by disease the regeneration is very slow. It depends much on the preservation of



the muco-periosteum and muco-perichondrium. Again the perfect adaptation of the two layers of perichondrium is essential."

This latter remark makes me believe that one should be very particular not to allow any accumulation of blood between the two layers.

One of the best ways to prove whether it does regenerate or not is by histological examination, and it has been my fortune to obtain a specimen, post-mortem, of one of my cases operated on two and a half years ago.

HISTORY. Man, 49 years old, died of pneumonia two and a half years after his operation for deviated septum. I obtained a splendid

result at that time, with perfect union of the flaps, and practically no loss of mucous membrane.

POST-MORTEM. Excision of the whole thickness of the resected window of the septum: that is, the two layers of muco-perichondrium from beginning to end. This was hardened properly and prepared in the usual way in sections; also stained with hematoxylin eosin.

Figs. 1 and 2 show no trace of any cartilage or bone in the whole course of the specimen, with either high or low power. The section



shows a fairly normal mucous membrane on each side of a dense, well-organized layer of fibrous connective tissue in place of the resected bone and cartilage. The glandular elements of the mucous membrane are but little changed from the normal, a point of extreme interest in contrast to other methods of operating on the septum, as, for instance, saws, Asch, Gleason, and other operations.

1220 Clark Street.

An Attic Douche. J. THANISCH. *Monatschr. f. Ohrenh.*, Berlin, August, 1904.

The apparatus consists of a wash bottle, connected with an attic canula. The fluid is driven through the canula by compressing the air in the bottle by means of a hand-bulb.

(Note.—The identical apparatus was devised by Hewitt, and described in the *N. Y. Medical Journal*, April 15th, 1893.—Y.)

YANKAUER.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON LARYNGOLOGY AND RHINOLOGY.

Regular Meeting, October 23, 1907.

THOMAS J. HARRIS, M.D., Chairman.

PRESENTATION OF CASES.

A Case of Primary Epithelioma of the Maxillary Antrum, By S. J. KOPETSKY, M. D.

To be published in full in a subsequent issue of THE LARYNGOSCOPE.

DISCUSSION.

DR. EMIL MAYER inquired whether Dr. Kopetsky had any reason to believe that the growth may not have sprung from the ethmoid. It seemed impossible that this patient could present so much diseased tissue within so short a space of time, especially as the history of most of these cases shows them to have had their origin further back than was at first suspected. Many years ago he had seen a young boy with a similar trouble involving both ethmoidal sinuses and extending into the nose. The patient bled profusely from the nose, and the rapidity with which the case progressed to a fatal termination was remarkable. An autopsy should be held in such cases wherever possible.

DR. W. W. CARTER said that last year he had showed before the Section a case of primary carcinoma of the inferior turbinate. A study of the statistics shows that these cases are much more rare than carcinoma of the accessory cavities of the nose. In many respects it had features identical with those of the case presented by Dr. Kopetsky. His patient was a woman thirty-eight years of age, while Dr. Kopetsky's case was a woman twenty-nine years of age. Here were two cases of deviation from the rule that carcinoma occurs only in the aged or those past 45 years of age. Another point is that pain is not one of the early symptoms of the disease unless the growth is confined between unyielding bony walls. If it occurs in the ethmoidal region the rule is that pain is an early symptom, otherwise it does not appear until necrosis of the bone begins or the growth is confined by the bony walls. Another point is that there

is very seldom glandular involvement when the carcinoma is confined to the nose; whereas when it begins in or spreads rapidly to the accessory cavities the glands become involved. The mortality in these cases is 100 per cent. At the time he had investigated the matter, there had not been reported a single case of recovery either with or without operation. In 1903, seventy-nine cases of primary carcinoma of the nose had been reported, and subsequent to this he had found records of 19 cases, making the total number to date 98. This included, no doubt, many cases of primary accessory sinus involvement. The cachexia in these cases is not marked. The course of the disease is so rapid that before the patient becomes cachectic he dies. At the time he reported his case, it was three months after the operation and absolutely the only part involved was the anterior third of the turbinate. It was thought that all of the diseased tissue had been removed and that if any case could be cured by operation this was one. Three months after operation there was no recurrence, but a month later (Dr. Carter said he wished this to be accepted as a supplementary report) the patient returned with a recurrence of the growth. Upon examination it was found that the anterior nasal cavity was filled with a cauliflower-like mass which extended to the ethmoidal region. The post-nasal space was also filled. The growth was very extensive and its development had been very rapid during that month. Only a palliative operation could be done, and the patient died twelve months after the incipency of the disease.

DR. LEDERMAN told of a case of small round-celled sarcoma which he had presented before the Section some years ago, the first case upon which the Dawbarn method of excising and ligating the carotids had been performed. Up to last spring the patient was still alive. The operation had been performed nine or ten years ago. He had tried a few injections of the Coley fluid at that time, but the pain and reaction were so severe the patient asked that this treatment be stopped. The external carotid was first ligated at the right side, and nothing further was attempted for the time being. It was surprising to see the diminution of the growth after an interval of two months. The remaining mass still persisted, however, and later Dr. Dawbarn did a resection of the superior maxilla after ligating the external carotid on the left side. The patient made a good recovery and is still alive.

THE CHAIRMAN said that both previous speakers had called attention to the fact that the Sarcoma was less malignant in character than the Epithelioma.

Scleroma of the Pharynx. By EMIL MAYER, M. D.

This patient is a young woman aged 23 years, born in Minsk, Lithuanian Poland, has been three and a half years in this country, and claims that her trouble is but of one year's duration.

She first presented herself at the clinic of the speaker at Mt. Sinai Hospital. Her history was very meager and she had ulceration and destruction of the soft palate and some intranasal growth anterior to the inferior turbinates on both sides. This latter was not enough to occlude the nares and she did not complain of the nose. There was a white scar on her right cornea which she said was due to an injury in childhood.

The diagnosis made by Dr. Mayer was Congenital Syphilis, and Potassium Iodide was given. Six weeks later she appeared, and not having been benefited by the treatment, his assistant, Dr. M. J. Ballin, suspecting Scleroma, removed a piece from the soft palate, which the pathologist promptly reported as due to the bacillus of Rhinoscleroma.

The advanced condition of her pharynx with the slight intranasal involvement points strongly to its having originated in the soft palate and makes the case unique in this respect. There is no external involvement of her nose and the larynx is entirely free.

The whole condition has decidedly improved since her first appearance due to the X-ray treatment instituted by Dr. Stern in Dr. Lustgarten's clinic.

This patient, like all the others here recorded, comes from the district where Rhinoscleroma is endemic, and the element of contagiousness of this disease is discussed, as it would be necessary to decide whether such cases might not properly be excluded from this country.

One gratifying feature is the wonderful results obtained from the use of the X-rays.

DISCUSSION.

DR. VOISLAWSKY said that during the summer he had had a case of Rhinoscleroma. The woman came from Austrian Poland. He had seen two or three patients who had been exhibited before the Section at various times, and had been impressed with the fact that the patients seemed to be somewhat deficient mentally. He would like to know whether Dr. Mayer had noticed this characteristic in any of his cases.

THE CHAIRMAN said that in this country at least the condition was still a rare one, and it would be well to discuss the subject at

length. Dr. Freudenthal had had two or three cases, also Dr. Toeplitz, and perhaps others in the Section.

DR. FREUDENTHAL said that he had now under treatment a very unique case in a child nine years of age, who had an obstruction of the nose since the mother can remember. The left ala nasi felt very hard to the touch, causing him to immediately suspect Rhinoscleroma. A portion of the inferior turbinates was removed, and a diagnosis of Rhinoscleroma was made. The child had been sent to Dr. Stern at Mt. Sinai for X-ray treatment, but there was no result from it, although only four sittings had been given. He had removed part of the very much thickened septum, and the child can breathe much better now. Dr. Freudenthal thought that that was the youngest case on record.

DR. MAYER, replying to Dr. Voislowsky's inquiry, said that he had not observed any mental deficiency in the patients he had seen. They seemed to be quite the equal of the same grade of our own countrymen. They do not understand our language nor we theirs, and that is probably where the trouble lies. With the aid of a good interpreter they understand fully and are sometimes remarkably bright. The patient who came from Austrian Poland would be included in the radius of the affected district. He had never seen a case in this country nor from any place far away from that centre. It does not seem to be very unusual in young children in the habitat of the disease. One writer mentions two babies so afflicted, and another tells of two sisters having the disease, both children. In his own cases, so far as he could gather, none of the other members of the family had been similarly affected.

In response to an inquiry from Dr. Harris, Dr. Mayer said that so far as he could gather the total number of cases reported in this country was probably not over a dozen. The same case would probably be reported in a number of instances. Dr. Toeplitz' case and Dr. Freudenthal's case had been reported by several dermatologists, and the same patients wander around from one clinic to another. A case that had appeared in his own clinic had been reported by Dr. Ballen. He (Dr. Mayer) also showed the same patient in societies and in that way the same case is mentioned often. On the other hand, some cases are unrecognized.

A Case of Cleft Palate. By JOSEPH H. ABRAHAM, M. D.

A. K., aged 18. Born in England. Mother living and well. Father died a year and a half ago from pneumonia. Six children all well and free from any deformity. This patient was operated

upon eight years ago for cleft palate, but the operation proved a failure. At present she complains of being unable to breathe through her nose, throat very dry, and frequent desire to cough.

Examination:—A cleft situated in the median line, somewhat elliptical in shape, extending from the hard palate backward through the middle of the soft palate and uvula. The interesting pathologic lesions are the uncommon posterior ends of the inferior turbinates blocking the posterior choanae and touching in the median line and adenoid hypertrophies. The mucous membrane of the posterior pharyngeal wall is atrophied, with adhering and dried mucus. The posterior turbinates and adenoids will be operated upon, and later an attempt will be made to close the cleft palate.

DISCUSSION.

DR. CARTER said that Dr. Abraham had emphasized that it was a very unusual hypertrophy of the ends of the posterior turbinate, but he had noticed in cases of cleft palate that had reached the age of Dr. Abraham's patient that there is always a considerable amount of hypertrophy of the posterior ends of the turbinates. He believed that this was an effort of Nature to accommodate herself to the imperfect structural conditions and to prevent the regurgitation of food through the nose.

DR. MACKENTY told of a case of hypertrophy of the posterior turbinates in connection with a case of cleft palate, where the hypertrophy almost fills the nasopharynx—so much so that the man can swallow very well. It produces an obstruction that almost compensates for the loss of the palate. The question had been raised as to whether it was wise to remove the mass, and it was decided that it would be best to wait until the palate was restored and then remove only so much as seemed necessary.

The case he had wished to show tonight represented the third attempt at closure of the soft palate. There was very little tissue to work upon. The edges of the wound were pared in an oblique way so as to increase the surface contract, and the muscles of the soft palate were all divided completely at their origins without dividing the mucous membrane more than was necessary. Then silver wire stitches were put in. An important point in this operation is to avoid tying the stitches too tight. Allowance must be made for swelling after the operation. Contact without constriction is to be aimed at. The after treatment in these cases consists of frequent cleansing with peroxide (1 in 4 or 5) every two hours during the

day, then with normal salt solution. The parts must be kept as clean as possible. In this case, perfect union was secured.

The tongue was dissected back from the floor of the mouth to an extent necessary to let the tip reach the palate. This step he considers very necessary in all cases where the tip of the tongue is short, since unless the tip of the tongue can reach the teeth and hard palate correct speech is impossible.

A Case of Sarcoma of the Tonsil and Base of the Tongue Treated with Radium. Cure. By W. FREUDENTHAL, M. D.

Man of 48 years of age. Family and personal history both negative. No history of venereal disease. Nine months ago first noticed a swelling of the throat, and later had some difficulty in swallowing. The swelling apparently grew larger and he applied to the dispensary for treatment. Examination revealed a tumor extending from the right tonsil to the median line along the base of the tongue. The mass was hard and bled very easily. Although no signs of syphilis could be found, still he was given K. I. in increasing doses and treated with inunctions. At the same time a small piece of the growth was removed from the tonsil, and the pathologist reported it to be sarcoma. What was to be done was the question. All my previous cases of sarcoma of the tonsil had died shortly after operation, and consequently I was not very anxious to operate in this instance, nor did the patient desire it. The anti-specific treatment instead of helping, seemed rather to stimulate the growth, and the mass was nearly three times as large as when treatment was commenced. The only thing that remained was to try radium. Ten milligrams of radium of 1,000,000 strength was applied, the first exposure lasting ten minutes, and subsequent ones twenty or twenty-five minutes. The exposures must be carefully timed in the pharynx and more so in the larynx, or they may result in oedema. The patient came to the clinic twice a week and immediately after the second or third treatment the mass began to break down and grow smaller. After the fifth or sixth treatment the mass disappeared entirely, leaving the throat as you see it tonight. It is a very remarkable case. Another piece was removed from the mass for examination before the application of radium, and this was sent to Dr. Jonathan Wright, who pronounced it sarcoma, of the rapid growing round-cell type, infrequently seen in the larynx. "Without a history and supposing it to come from the larynx where sarcoma is rare, I leaned to the idea of syphilis, but a more careful examination leads me to believe it sarcomatous."

Dr. Freudenthal said that he studied the case with four assistants, and many of his colleagues saw the patient, and it was truly remarkable to see how the growth melted away under the radium. There is now no sign of sarcomatous tissue.

In reply to a query as to how long since the growth disappeared, Dr. Freudenthal said that it was now about four months.

DISCUSSION.

Dr. PHILLIPS said that two or three years ago a tube of radium had been placed in his hands for experimentation with the emanations. It was used for some time very carefully, Dr. Kopetsky carrying on the experiments, but when the results were published there was no case of any kind wherein radium had been used in the larynx, pharynx, or middle ear with any beneficial results. His experience and observations with electricity and radium in any form, had led him to become sceptical as to any good resulting from these methods.

Dr. EMIL MAYER said that it was not to be denied that the most successful reports of the use of radium have come to us from men whom we must believe, for they cannot have been mistaken every time. There must be some explanation of the diversity of opinion regarding the success or failure of the radium treatment. Perhaps some of the failures might be accounted for by the quality of the radium tubes used.

In the speaker's knowledge, no good results had been obtained.

Dr. PHILLIPS replied that his tubes had been furnished by the firm supposed to own the finest supply of radium in America.

Dr. KOPETSKY said that experiments to which Dr. Phillips had referred were carried on upon all kinds of small new growths, especially in the ear. The tubes were introduced into suppurating ears with granulating polyps, and tried thoroughly, but the polyps remained just the same, no change of any sort being noticeable from the use of the radium. In the nose it had no effect at all; and granulations in the larynx were also found unaffected. Dr. Kopetsky said that he had also tried the effect of radium upon various cultures of bacteria in the laboratory. The radium did not seem to affect the germ growth on culture in any perceptible manner.

THE CHAIRMAN spoke of a case reported by Dr. Wilson of Bridgeport of sarcoma or possibly epithelioma of the auditory canal which was cured with four or five applications of radium. His last report, made six months or a year ago, stated that the growth had

returned since the first report, but had again disappeared after one or two applications of radium.

DR. SEYMOUR OPPENHEIMER said that there certainly seemed to be a great diversity of opinion in regard to the value of radium in malignant disease. Probably the reason for some of the bad results lay in the fact that it was used upon non-operative cases, cases declared to be such by the surgeon, and the radium was used as a forlorn hope. He had known of three cases where radium was employed, in all unsuccessfully. Two of them had been treated by Dr. Morton, who was one of the most experienced men using it. One was a case of involvement of the floor of the mouth, and a third was a case of malignant growth of the tonsil. The last named case resulted tragically. The patient used the tube himself, inserting it in a fistulous tract existing in the neck. Considerable difficulty existed in opening the jaws wide enough to take food, but immediately after using the tube in the fistulous opening he could open his mouth readily. It was his delight to show his medical advisers the wonderful results of the tube upon the ankylosis. One day, however, in showing off what the tube could do, he pushed it into his carotid artery, which had evidently become eroded—a big gush of blood followed and the patient died, a martyr to science.

DR. FREUDENTHAL said that the radium he employs is no better than that used by others, and in fact came from the same place as that used by Dr. Phillips. He did not know what effect it has upon granulating polyps or on sarcomata in general, but the results obtained by Dr. Abbe, Dr. Wilson and himself he knew were real. In his own case the diagnosis was made by two different men. The growth was there, and disappeared after the application of radium—the total time of application being one and one-half to two hours. He could not say whether or not he would have the same success in another case. He recalled a case of epithelioma of the larynx and oesophagus in a lady 68 years of age. The radium was applied to the oesophagus and the patient could swallow. Soon afterward, however, she died, so there was no permanent effect produced by the radium. What the ultimate effect will be in all cases cannot yet be said. It is only by much larger clinical experience that we can determine its full merits.

Case of Gumma of the Larynx with Necrosis of Right Arytenoid.

By HARMON SMITH, M. D.

To be published in full in a subsequent issue of THE LARYNGOSCOPE.

DISCUSSION.

THE CHAIRMAN called attention to the fact that in Dr. Smith's case no result was reached by the Potassium iodide treatment until the patient was taking the enormous dose of 180 grains three times a day.

DR. SMITH said that he would report again on the case later. He did not think the necrosis was at an end, but expected further cicatrization within the necrotic area. It was a question as to whether it would not have hastened the recovery to have entered the larynx externally and scraped out all the necrotic tissue. This might have prevented a great deal of the cicatrization which will naturally occur as time goes on. He would be very glad to have this question brought out in the discussion.

DR. THURBER said that the worst case of gumma of the larynx that he had ever seen was in a woman 26 years of age, and in her case a small ten-year-old sized intubation tube was put in the larynx. It was taken out at intervals to see if she could do without it. As the growth shrank under the Potassium iodide treatment, the tube could be taken out.

DR. MEIERHOF said that in his experience surgeons had great objections to performing operations during syphilitic activity, unless life was in jeopardy.

Report of a Case of Tubercular Laryngitis and Three Cases of Benign Laryngeal Neoplasms. By T. J. Harris, M. D.

The first case is a case of Laryngeal Tuberculosis which I present because of the doubt which has existed up to a short time ago in reference to the diagnosis. The man, D. C., is 50 years old and was referred to me by his family physician, who stated that he had treated him for some affection of the liver. At that time there were two distinct areas of ulceration upon the epiglottis, one on the lingual and one on the laryngeal surface. The patient was in good general health and only complained of pains in his throat. Acting upon the report of the family physician, although the patient denied lues, I put him upon iodide of potassium with Mercurial injections, and the condition in the throat began to at once improve, and the patient stated that all pain had disappeared. I did not see him for a number of weeks until my return from my vacation. At that time, three weeks ago, I again saw him and found the condition of his larynx much as it appears tonight. At this time, I began to question my diagnosis, although there was no real relapse. He

was submitted to a physical examination which, of course, should have been done on his first visit, and an infiltrated area was discovered at the apex of the right lung. A solitary tubercle bacillus was found in the sputum. His temperature was on that occasion 99.2 degrees and his pulse 110.

This case illustrates the repeated observation of us all, of the necessity of a general examination in all such cases as well as the fallacy of the so-called therapeutic test to prove or disprove the presence of lues.

The histories of the three Laryngeal cases are as follows:

Case 1. J. B., aged 21, presented himself last July complaining of hoarseness, especially upon forced use of the voice. Examination showed a sessile growth, dark red in color, attached to the inferior border of the left vocal cord at its middle and anterior third, three millimeters in length. A clinical diagnosis of fibroma was made, and the growth was removed without difficulty by means of the Spiess forceps, which I take the opportunity of presenting. The instrument is undoubtedly known to most of you here, but it is possible that some of you have not had the opportunity of using it and thus satisfying yourselves of the great steadiness secured in its manipulations by means of the trigger handle.

The report of the pathologist was that of hyperplastic epithelium and a small bit of fibrous sub-connective tissue. Not being a pathologist, I am unable to say whether this differs from a true neoplasm, and wish that Dr. Wright were here to explain it. Certainly clinically, it had every ear mark of such a growth. Its removal at once restored the voice of the patient.

Case II., K. B., aged 29, married, always in good health; for the last nine months has suffered from impaired voice until at present, she is entirely aphonic. There is no evidence of lues, temperature 98.4 degrees; pulse 88. Examination of the larynx shows a wart-like mass filling the anterior commissure. This is attached to the right cord and false cord anteriorly, as well as the left cord opposite. The sputum of the patient has not been examined, but her chest does not give any evidences of tuberculosis. The clinical appearance is one of a papilloma. Either simple or tubercular in nature. At a subsequent meeting I shall give microscopic findings.

Case III, aged 35, a cigar maker, was seen by me last week for the first time. He complains only of hoarseness, varying in intensity. Examination of the larynx shows upon expiration a semi-translucent pedunculated growth, springing from the surface of

the right vocal cord in its anterior portion. Clinically the case is one of a polyp of the vocal cord usually described as a myxoma.

DISCUSSION.

DR. EMIL MAYER said that the cases were too interesting to be passed over without comment. The case of the young woman is especially interesting in regard to the possible origin and character of the mass. He hoped that the Chairman would later present a report on the findings after the removal of the growth. There is no question of the diagnosis in this case or the one with a sub-cordal growth, nor in the case of tubercular ulceration.

In response to an inquiry from Dr. Mayer, Dr. Harris stated that in the last named case one tubercle bacillus was found. Dr. Mayer said that that was especially interesting, for there was no marked pulmonary involvement. The condition of the man's epiglottis was very peculiar, and presented quite a picture of lupus, and to find only a single bacillus in a case of so much ulceration would point to that possibility, especially as his physical condition was so good. He is free from all signs of general tuberculosis. If it should prove to be a case of lupus it would make a great difference in the ultimate prognosis of the case. Cases of lupus have been known to last for 18 years before going to pieces with tuberculosis; in another instance a case lasted 7 or 8 years, and in another still longer. He hoped the Chairman would try whether a more careful and thorough examination with this in view might not enable him to tell his patient that although the condition was undoubtedly tuberculosis, yet it was one of very slow action.

THE CHAIRMAN responded that he had this idea in view in presenting the case and was hoping that Dr. Mayer would make just such a reference as he had made, and he would be very glad to carry out his suggestions.

DR. CHAMBERS said that this case reminded him of one in which he and Dr. Freudenthal removed the epiglottis about five years ago. Some one had asked him tonight if he had made out this case to be a tuberculous one, but he could not say that he did, although if Dr. Harris had so diagnosed it, he must be right. It reminded him very strongly of the lupus case which he had seen some years before.

THE CHAIRMAN said that the two cases which were presented tonight with the neoplasms untouched were shown with the idea of bringing out a discussion of the diagnosis. The case of the young woman appeared to be a true papilloma, but it was possibly

a simulating papilloma, tubercular in nature. Such a case could very properly be removed by direct laryngoscopy.

THE CHAIRMAN responded that he would bear in mind the suggestions that had been offered, and hoped to make a further report on the case of the young woman later.

Case of Thyroidectomy for Graves Disease. By J. E. MACKENTY, M. D.

The patient, Mary McK., had the ordinary diseases of childhood, excepting scarlet fever; also malaria. Nervous temperament. Subject to indigestion, epigastric fullness, and bloating. Since childhood she has had considerable headaches, the pain being frontal, severe, and lasting from half a day to a day and a half—occurring about once a week and occasionally accompanied by vomiting (migrainous). No family history of thyroid disease. Two years ago, she noticed a rapidly increasing growth in the thyroid region, which may have been there for some time before her attention was called to it.

The growth was large, bilateral, nodular, cystic, affecting the whole gland, and extending into the sternal notch, and laterally more on the right side. Pathological examination showed the growth to be cystic. The patient was operated upon June 27 and made an uneventful recovery. Drainage was employed for 15 days. There was a paresis of the left vocal cord but no loss of voice. This is now almost normal. The cosmetic result is excellent. The symptomatic cure is even more satisfactory. Prior to the operation she suffered from exophthalmos, tachycardia, palpitation, nervousness, muscular tremor, occasional generalized pains, muscular weakness, insomnia, severe headaches, vertigo and unrest, indigestion, emaciation, and a good deal of vesical irritability. The tachycardia, nervousness, and palpitation are improved; the muscular tremor is practically gone; the pronounced muscular weakness is also gone, and she can now walk a reasonable distance without fatigue; exophthalmia and the generalized pains have disappeared, she no longer suffers from insomnia, has had no headache or vertigo since the operation, has gained eight pounds in weight. The vesical irritability is still present and she still suffers more or less from indigestion.

DISCUSSION.

DR. LEDERMAN inquired whether Dr. Mackenty had tried any of the thyroid extracts, thyroidectine, etc.

THE CHAIRMAN said that a colleague had performed the operation now upon eleven cases—not complete, but leaving some of the gland, without any thyroid symptoms. There was no death in the series from the operation, though in one instance he had been called to operate upon a dying woman.

DR. MACKENTY responded that he had used no thyroid treatment in the case, as it did not seem to be indicated. The growth was of a cystic nature, and the thyroid treatment would seem to apply more to cases of parenchymatous enlargement. Nothing, in his opinion, would relieve cystic degeneration excepting the knife. He had presented the case more to show the excellent cosmetic results than for any other purpose.

EXHIBITION OF SPECIMENS.

Foreign Body Removed from the Bronchus. By SINDEY YANKAUER, M. D.

Dr. Yankauer said that in August he had been called to see a boy five years of age with the following history: Six weeks previously the child had been eating peanuts and had swallowed or inhaled a portion of the kernel. This was followed by a spell of spasmodic coughing which disappeared after half an hour. There were no further symptoms, but the following day and every day thereafter there were attacks of coughing, like attacks of whooping cough. At the time of his visit the boy was running about and did not seem to be incommoded in any way, but had one spell of coughing. Examination of the chest revealed many dry and moist rales. On the following day the boy was anaesthetized and a bronchoscope seven mm. in diameter was passed through the larynx. When it reached the bifurcation, the foreign body was seen in the right bronchus. It was seized and a small piece was removed. The forceps were introduced a second time and a larger piece was removed; a third attempt brought away half of the remainder, and the rest was coughed up through the tube. The tube was then withdrawn. The time from the beginning of the anaesthesia in the bedroom, to the removal of the foreign body, was fifteen minutes.

There were two interesting points in connection with this case: First, the foreign body was removed through the natural passages. Quite a number of specimens of foreign bodies removed from the bronchus have been presented before the Section during the last two years, but in all of them the foreign body was removed through a tracheotomy wound, though in some the tube could be passed

through the natural passages. In this case, it was removed without difficulty through the larynx. In spite of the fact that the boy was only five years of age, the manipulation was performed without any injury. There was no hoarseness, no pain, and no laryngeal symptoms of any kind, and he made a good recovery. The second point of interest lay in the fact that the foreign body was a peanut kernel, as kernels or any vegetable matter are particularly dangerous; the most dangerous of all is the bean, but the peanut does not seem to swell up and become as soft as some of the other kernels do.

Nasal Polypi attached to Ethmoid Cell. By N. L. WILSON, M. D.

This specimen was presented to show that the removal of a polypus is not without danger. The polypus was engaged well up at the base, and only ordinary traction was employed, but nevertheless the ethmoid cells came away with the polypus. The patient, however, made a good recovery.

Tubercular Ulceration of the Tongue. By W. FREUDENTHAL, M. D.

The patient from whom this specimen had been removed had been presented by me last winter before another society on account of a small neoplasm on the tip of the tongue. It was not possible at the time to have a microscopic examination made, as the patient was too timid to allow us to remove a piece. Several of those who saw the patient thought that it was a malignant growth. The patient shortly afterward, however, developed tuberculosis of the larynx and was sent to the Montifore Home. There the mass broke down very soon, and a marked ulceration developed. Patient died during the summer and half of the tongue was removed. The specimen is so exceptionally nice, that I thought it might interest you.

EXHIBITION OF INSTRUMENTS.

Handle of a Laryngeal Forceps. By T. J. HARRIS, M. D.

This was devised by Prof. Spiess of Frankfurt, Germany.

Nasal Snare. By W. H. HASKIN, M. D.

Dr. Haskin said that he had found this snare in Paris during the summer, and while it was faulty in that it was not sufficiently strong it was very useful in that it allows the loop to be placed at any desired angle, draws and cuts at the same time. After adjustment the loop will always assume the same angle on being released from the stylet.

CHICAGO LARYNGOLOGICAL AND OTOLOGICAL SOCIETY.

Regular Meeting, October 8, 1907.

J. HOLINGER, M.D., President.

A Case of Laryngeal Stenosis. By J. T. CAMPBELL, M. D.

DISCUSSION.

DR. E. FLETCHER INGALS: A cursory examination of the case leads me to believe that it is one of tuberculosis. The uniformity of the swelling on both sides militates against malignancy. The fact that iodides did not improve the patient eliminates syphilis and the fact that the iodides made the patient feel worse points toward tuberculosis. Eliminating the history given, I think every one would consider this a case of tuberculosis. The fact that no tubercle bacilli have been found would not militate against that diagnosis, because very often we fail to find bacilli in laryngeal tuberculosis.

DR. O. T. FREER: In my opinion the anatomical conditions in Dr. Campbell's case indicate perichondritis of the cricoid cartilage, involving both its posterior and anterior portions. The smooth, edematous enlargement of the posterior wall of the larynx, bulging into the laryngo-pharynx, and the symmetrical subglottic swellings that meet in the centre below the cords are typical of this affection. On one side the inflammatory process has caused a fixation of the cricoarytenoid joint, while the other is still movable.

Chronic perichondritis of the cricoid cartilage has many causes and as Dr. Ingals suggests, it may be of tubercular origin in this instance. I recall two cases from my experience which were traumatic. In the first, the disease followed a laryngotomy performed by me for the removal of a sarcoma of the cord and until I lost sight of the patient the condition created a total closure of the laryngeal lumen. In the second case, the perichondritis was maintained by the prolonged wearing of a tracheotomy tube, which had been inserted too high, after division of the cricoid cartilage in front, the larynx being completely filled by the swelling in this instance.

As to the cause of the condition in Dr. Campbell's patient, it seems to me that it can not be determined without further observation of the case.

DR. A. W. BAER: I would like to ask Dr. Campbell whether he has tried the interrupted galvanic current?

DR. CAMPBELL: No, I have not.

DR. BAER: I am sure that nothing would give the patient more relief and better results in the case than electricity.

DR. GEORGE E. SHAMBAUGH: I saw this patient a few days ago, and the findings described by Dr. Campbell agree with those I found. I think that an intralaryngeal incision might be of some benefit to the patient.

DR. HOLYNGER: I do not believe that this is a case of malignant growth, because there is an absence of swelling in the glands of the neck. I agree with Dr. Ingals that it is tubercular, and suggest ignipuncture. The procedure is not painful if the area is well cocainized, and is exceedingly valuable.

DR. J. T. CAMPBELL (closing the discussion): These things have all been considered. Dr. Hardie and Dr. Morgenthau saw the man with me and we were unable to make a positive diagnosis. I think that trypsin has done much good in this case. This man has gained 41 lbs. in weight and this gain agrees with the results usually obtained by the use of trypsin. The man I showed here a year ago has since died and carcinomatous involvement of the base of the tongue and the glands of the neck was found.

Some Points in the Surgery of the Sphenoid Sinus. By A. H. ANDREWS, M. D.

DISCUSSION.

DR. F. E. BRAWLEY: I believe that the curvature Dr. Andrews gives his probe is a real advance in the diagnosis of diseases of the sphenoid sinus. I think that his objection to removing at least a portion of the middle turbinal may be questioned, because the original sphenoid disease depends to a great extent on stenosis in this region. There are hypertrophies of the middle turbinal which close the channel in the nose, thus preventing proper aeration and reducing the vitality of the tissues. There is no objection to removing at least the posterior half or third of the middle turbinal, so that the ostium can be reached directly. I have used this probe in two cases. I was successful in one, and unsuccessful in the other. I had to make my probe myself, however, and that may account for the lack of success in the one case.

DR. ANDREWS (closing the discussion): I am not opposed to doing anything necessary for the cure of these cases, no matter

how radical it may seem, but I do not approve of the removal of the middle turbinal on suspicion in every case where the sinus should be explored. The exploration of this sinus is so comparatively simple, that I feel I have sadly neglected a great many patients whom I have treated for what they called "post-nasal catarrh."

Severe Primary Hemorrhage After Removal of the Faucia Tonsil.

By O. J. STEIN, M. D.

To be published in full in a subsequent issue of THE LARYNGOSCOPE.

DISCUSSION.

DR. E. PYNCHON: I have on several occasions noticed that if a tonsil operation is done during the menstrual period, there is more soreness than at other times, so I advise against the operation at such times. Dr. Stein did not mention the application of a strong solution of nitrate of silver, 25 per cent. In those cases where there is oozing from the surface, nothing is more efficient.

DR. H. STOLTE, of Milwaukee: During the past year I have had much to do with hemorrhage from the tonsil. During that time I attended many Catholic Sisters who, I believe, because of their sedentary life, have tissues poor in vitality and blood vessels with insufficient contractile powers. I had so many cases of hemorrhage that I was afraid to operate any more in these cases. The first remedy to check the bleeding I use is a one per cent dioxogen ice water gargle. If the bleeding does not stop then, I arm an applicator with a big pledget of cotton, dip this in pure dioxogen and then press the instrument with force into the tonsil pocket, holding it there for two minutes. In about 90 per cent of all cases of severe hemorrhage, the hemorrhage stopped. If there is any oozing, I apply a strong nitrate of silver solution, using a moment when the bleeding surface is dry, instantaneously after having removed the cotton pledget. If both these remedies fail, I suture the arch, especially when there is arterial bleeding from the upper part. I use Yankauer's needles, and the suture is quickly made. The reaction is not great, there is only a little edema, and the bleeding is checked absolutely. In one case I made use of Dr. Pynchon's method of cautery dissection. It was more painful than a cutting operation, but there was no hemorrhage. In suitable cases I am going to resort now to the cautery method.

DR. O. T. FREER: Among local measures for the control of hemorrhage after tonsillotomy I have used the Mikulicz tonsil clamp with varying results. In some cases, presumably where the bleeding

vessels were in the bottom of the excavation left by the tonsil excision, it promptly controlled the hemorrhage. In other cases the bleeding continued, while the clamp was in place, and in others it returned as soon as the clamp was removed, so that it had to be worn for many hours. I have never seen injury from the Mikulicz clamp.

The advice is often given, under the supposition that the hemorrhage comes from visibly spurting vessels, to stop the bleeding by seizing them with long artery forceps. In practice I have had no success with this procedure for I have not been able to see definite jets of blood in the tonsillar wound, indicating the vessels to be seized. While such jets may have existed underneath the fluid and clotted blood which filled the niche from which the tonsil had been excised, the constant flow of blood hid them from view, so that instead of accurately grasping the bleeding points with the forceps, as in a wound upon the surface of the body, I blindly tried to seize them in the bottom of a well of blood, the proceeding being made more difficult by the retching of the patient. I not only hurt him a great deal, but aggravated the bleeding and inflicted injury which led to subsequent inflammation.

Of late, as an aid to local measures for the control of tonsillar hemorrhage, I have come to rely a good deal on general ones which withdraw the blood from the throat into other parts of the body or reduce the general blood pressure. The first of these general measures is the taking of deep inspirations by the patient while he stands. The upright position favors syncope, hence a lowering of the blood pressure, and the deep inhalations suck blood into the thorax as well as air, thus withdrawing it from the wounds in the throat and giving open vessels a chance to close. In two cases of tonsillar hemorrhage I have seen the bleeding checked by this simple measure alone.

The second general measure is the production of emesis. This is a well known remedy for controlling pulmonary hemorrhage and acts by lowering the blood pressure by weakening the force of the heart. Emesis is best induced by a hypodermic injection of one-tenth of a grain of apomorphine. I have repeatedly seen tonsillar hemorrhage cease spontaneously, when the patient vomited on account of blood he had swallowed.

The third general measure, to be used in cases of severe tonsillar hemorrhage, is the ligation of the extremities in order to confine the blood in them and to withdraw it from the general circulation.

I suggest a combination of the general measures suggested with local ones instead of the reliance on the latter only, which now seems to be the practice. Local applications are apt to be employed in rotation until the last one used, when the bleeding stops spontaneously because of approaching syncope due to the loss of blood, for the time being obtains the credit of being a most effective remedy for stopping tonsillar hemorrhage until used in the beginning of the next case it proves useless.

DR. J. C. BECK: The fact that during menstruation bleeding occurs more often and more profusely is so well known in surgery, that the surgeon will not operate, except in emergency cases, during this period. But there are other conditions that favor hemorrhage, such as cholemia, or, during cholelithiasis, where the blood is changed. Surgeons nowadays always examine into the coagulability of the blood. In a recent issue of the Johns Hopkins Bulletin, Williams and Shedon described a means for estimating the coagulability of the blood which is applicable in all cases. This method is very simple, and I have tried it in a number of instances, with good results. At the Presbyterian Hospital, much reliance is placed on this test, and it is carried out before every operative procedure. I have found that in most of my cases the coagulability of the blood is normal. I have not had a severe hemorrhage in a single case where the method was employed. If the coagulability is lessened, we will not operate, but administer a number of doses of calcium chloride so as to increase the coagulability of the blood. The patient will also be denied foods which increase the tendency to hemorrhage.

I have had hemorrhages and I always rely on the arterial forceps. One can see where most of the bleeding comes from, and one need only grasp the region of the tonsil and not the vessel to check the bleeding. The anterior pillar usually is the one to be grasped. The bleeding is checked in a few minutes. I consider the Mikulicz clamp an instrument of last resort. I have had marked infiltration follow its use, and considerable difficulty in swallowing and in the use of the voice.

DR. G. P. HEAD: I agree with Dr. Beck in regard to the use of the artery forceps. If it is an arterial hemorrhage, you can get perfect control at once by using a long artery forceps instead of waiting for clotting to take place. I want to call attention again to a general measure which I used successfully in the worst case of hemorrhage I ever had, and that is the hypodermic injection of

veratrum viride. The hemorrhage ceased immediately and I could not attribute the result to anything except the veratrum.

DR. H. M. THOMAS: I want to ask Dr. Stein whether he has tried ferropyrin for the control of primary hemorrhage after tonsillotomy?

DR. STEIN: I have not.

DR. THOMAS: It has been my custom for some time in cases of primary hemorrhage after tonsillotomy to use ferropyrin. The preparation consists of equal parts of chloride of iron and antipyrin. It is a most admirable styptic when applied in the dry form on a pledget of cotton.

DR. J. G. WILSON: Believing that the blood supply of the tonsil is definitely located, I see no reason why artery forceps cannot be applied effectively to check hemorrhage. In discussing hemorrhage from the tonsil, two things must be considered, first, the question of hemorrhage from the pillars of the fauces and plica triangularis, and, secondly, that from the tonsillar sinus. The exponents of the enucleation method necessarily cut very deeply and so easily pass through the fibrous sheath of the tonsil and injure the constrictor muscle. Thus they run great risk of severing the larger branches of the tonsillar artery. The location of the larger branches of the tonsillar artery is perfectly definite; they come from the main trunk at the middle of the tonsil, one branch passes upward and the other downward toward the poles of the tonsil. It is therefore possible with artery forceps to catch the tissue lying in this median area and so to arrest hemorrhage after the removal of the tonsil, be it a spouting artery or a general oozing. The blood supply of the anterior pillar and plica triangularis comes chiefly from the lingual; that of the posterior pillar comes chiefly from the descending pharyngeal. With this knowledge it is not difficult to apply forceps in such a way as to arrest hemorrhage in these areas.

DR. H. GRADLE: It has been my good fortune not to have seen any severe hemorrhages after tonsillotomy for a considerable time. I may perhaps attribute this to my plan of not removing the lower part of the tonsil, in which there are no crypts. Observation of patients after partial tonsillotomy has shown me that they do not seem to suffer any disadvantage from leaving this lower remnant, and since following this plan I have not had an alarming hemorrhage.

Another styptic not mentioned which I have used very much in hemorrhage, especially from the inferior turbinal, is a mixture of

dry tannin and a strong antipyrin solution. It is about the most rapid acting of the non-caustic astringents with which I am familiar.

DR. STEIN (closing the discussion): It is remarkable how long we can go without having a case of severe hemorrhage. I never had one as severe as this in the seventeen years I have done this work. My report was intended mainly to emphasize the importance of inquiring into this one causative factor, menstruation. We are all interested in hemorrhages, and we all have our favorite remedies. They are all good. I used nitrate of silver solution, in 33 per cent strength, in this case, but without result. I am fond of dioxogen or peroxide of hydrogen, and I use it and usually it is sufficiently styptic to stop in ordinary hemorrhage. I also employ deep breathing through the mouth or nose, if I am doing an adenectomy, although I never have my patients stand. I think there is considerable value in this method. As to the question of demonstrating the coagulability of the blood, I think it is of great value, but I doubt if many of us employ this test, particularly before operations on the tonsil. I do believe, however, that it would be a good plan to do so.

I am reminded by the discussion of a few cases reported by Moritz Schmidt, who speaks of severe prolonged hemorrhage following operations about the throat in patients who wore a tight collarband. Loosening the band immediately checked the hemorrhage. I demonstrated that once to my entire satisfaction.

As far as applying sutures and forceps to the bleeding point or particularly to the anterior pillar is concerned, I have often spoken of the use of the tenaculum, passing the instrument through the anterior and posterior pillars, giving it one twist, and holding it to the side of the mouth. That will usually check an ordinary hemorrhage. I did not have a tenaculum handy at the time when the bleeding occurred in the case reported, therefore I used the forceps.

The Use of Electrolysis for the Destruction of Dilated Veins of the External Nose and Septum. By O. T. FREER, M. D.

To be published in full in a subsequent issue of THE LARYNGOSCOPE.

DISCUSSION.

DR. H. STOLTE, of Milwaukee: I want to ask Dr. Freer whether he has used positive electrolysis on red noses due not to dilated blood vessels, but to a general redness from not visible capillaries, and whether he has used positive electrolysis on dilated arteries of the nose, and whether a hemorrhage would not result as soon as the artery is punctured?

DR. O. T. FREER (closing the discussion): I have not used the method for simple redness of the nose, nor have I had an opportunity to try the needle in the case of small dilated arteries, but the very minute puncture made could not produce hemorrhage of any consequence from them and the electric current would speedily stop any bleeding.

A Window Resected Septum. By J. C. BECK, M. D.

DR. BECK presented a specimen taken from a patient who died from pneumonia two and a half years after a submucous resection had been done. The specimen shows that there is no regeneration in the septum of either bone or cartilage, but merely a formation of dense fibrous tissue with complete restoration of the mucous membrane. The patient was 35 years of age when operated on.

Inspection of School Children with Special Reference to the Ear, Nose and Throat. CHAS. WYCHE, (St. Louis). *St. Louis Med. Rev.*, May 4, 1907.

The author urges the importance of an early otological examination, and mentions as requiring special attention, enlarged tonsils, irregularities of the septum, hypertrophic and atrophic rhinitis, and, above all, to adenoids.

Eye examinations in the public schools have attracted the attention of the public, which attaches a lack of importance to otology, and is due to ignorance on the part of the parents and to some extent on the part of teachers. Each pupil, irrespective of what the teacher thinks, or the pupil may feel in regard to his condition, should be carefully examined. A card system recording the condition obtaining should be kept.

Notification in case treatment is necessary should be sent to parents at once, and this would relieve the teacher of all responsibility as to future complications. That a teacher who has the same pupils under him or her for months will readily acquiesce in the physician's demands for treatment is a foregone conclusion. Much more difficult will be the training of parents, there being a popular prejudice in the minds of well-to-do parents that only children of the poor are hampered by ailments undiscovered by parents and guardians.

It will be noticed that the author's views are, in essentials, those carried out by the system of Dr. Frank Allport of Chicago, and now compulsory by law in several states.

EATON.

BOOK REVIEWS.

The Diseases of the Nose and Its Accessory Sinuses.

By H. LAMBERT LACK, M. D., (Lond.), F. R. C. S. Royal 8vo., 399 pages, with 124 illustrations. Price 25s. Publishers, Longmans, Green & Company, 39 Paternoster Row, London, New York and Bombay.

In 1899 the author was awarded the Jacksonian Prize for an Essay on "The Pathology, Diagnosis, and Treatment of the Inflammatory Affections of the Nose and Its Accessory Sinuses and Air Cells." This essay, revised and amplified, furnishes the nucleus of the present volume.

What impresses the reviewer as the most distinctive feature of this book is its originality. As an expert pathologist the author is especially well qualified to present the pathology of the various neoplasms and diseases in Rhinology, and this he has done in a lucid and concise manner, supplementing the text by illustrations of microscopic sections and macroscopic specimens.

Of operative technique he presents the most acceptable and most recent methods and seems to have given due credit to all that may be of definite practical value.

Treatment is given much prominence in this volume and we cannot but admire the terse and definite suggestions laid down in these paragraphs. All in all, it is one of the most "meaty" treatises of modern productions in Rhinology. M. A. G.

Practical Dietetics with Reference to Diet in Disease.

By ALIDA FRANCES PATTEE, Graduate, Boston Normal School of Household Arts; late Instructor in Dietetics, Bellevue Training School for Nurses, Bellevue Hospital, New York City; Special Lecturer at Bellevue, Mount Sinai, Hahnemann, and the Flower Hospital Training Schools for Nurses, New York City, St. Vincent de Paul Hospital, Brockville, Ontario, Canada. Fourth Edition. 12 mo., cloth; 300 pages. Price \$1.00 net; by mail, \$1.10; C. O. D., \$1.25. A. F. Pattee, Publisher, 52 West 39th Street, New York.

The rapid appearance of the second, third and fourth edition of this volume is an indication of the appreciation which a good, practical book receives at the hands of the medical and nursing profession.

It presents in small compass recipes for the preparation of the various foods, liquid, semi-liquid and solid; the proper dietary for the different diseases, and for conditions requiring special feeding as pregnancy; and the diet for infants and young children. Suggestions for the nurse in the sick room are added with convenient information as to the ordinary measures and their equivalents, and the preparation of percentage solutions.

Two indices in the back of the book, one to recipes and one to diseases make reference to the special chapters easy and add much to the value of the book. Based as it is upon long personal experience, and upon the best authorities on diet, the book can be recommended to practitioners, students and nurses.

Diseases of the Rectum, Their Consequences and Non-Surgical Treatment.

By W. C. BRINKERHOFF, M. D. 12mo.; 200 pages. Price, \$2.00. Urban Pub. Co., 17-21 E. Van Buren St., Chicago.

While it is not usual to present a book on this subject to that portion of the profession whose special field is the upper respiratory tract, the well-known reflex relationship between the rectum and the nose and throat should make no excuse necessary.

The book is a protest against the application of surgery to rectal diseases where the condition will yield to less radical measures. It also aims to direct the physician's attention to the rectum as the possible seat of trouble to account for symptoms in remote regions.

Plaster of Paris and How to Use It.

By MARTIN W. WARE, M. D., Adjunct Attending Surgeon, Mount Sinai Hospital; Surgeon to the Good Samaritan Dispensary; Instructor in Surgery, N. Y. Post Graduate Medical School. Cloth, 12mo.; 72 Illustrations, about 100 pages. Price, \$1.00. Surgery Pub. Co., 92 William St., New York City.

This book is a complete treatise on the use of plaster of paris as applied to surgery and brings into convenient form information which is rarely treated practically and completely in text books of surgery and orthopaedics.

While the subject is of more interest to the general surgeon, the technique of making plaster casts can be easily applied to deformities of the nose and ear. A chapter of plaster of Paris work in mouth surgery is also included.

A Non-Surgical Treatise on Diseases of the Prostate Gland and Adnexa.

By GEORGE WHITEFIELD OVERALL, A. B., M. D., Chicago. Cloth, 12mo.; 227 pages, 26 Illustrations. Rowe Publishing Company.

The various pathological conditions of the prostate are considered and illustrative clinical cases are reported. Three chapters are devoted to the therapeutic action of electricity, electrolysis, cataphoresis and high frequency current.

The World's Anatomists, Concise Biographies of Anatomic Masters from 300 B. C. to the Present time, Whose Names Have Adorned the Literature of the Medical Profession.

By G. W. H. KEMPER, M. D., Professor of the History of Medicine in the Medical College of Indiana, Indianapolis, Indiana. 11 Illustrations (9 Portraits). Price 50 cents. Publishers, P. Blakiston's Son & Co., 1012 Walnut St., Philadelphia, Pa.

A very handy little book which tells of most of the names that vexed the young student of anatomy, and some others. Many of the illustrations are from famous portraits.

Surgery of the Nose (Zur Chirurgie der Nase).

By LUDWIG LOWE of Berlin. In two volumes, 4to.; Vol. I., 40 pages, with 11 inserts and 11 illustrations in the text. Price 10 marks. Vol. II,

BOOK REVIEWS.

103 pages, with 9 inserts and two illustrations in the text. Price 15 marks. Publisher, Oscar Coblentz, Berlin.

The author has undertaken to present the radical surgery of the nose from the view-point of exposing the affected area and penetrating the depth of the nasal fossa by way of the face and of the mouth.

The subject matter is presented in two large folios of 100 pages and twenty well-executed plates, and from a literary and typographical point of view is a very artistic and creditable production.

As reviewer and rhinologist, however, we must protest most emphatically against this astounding and violent radicalism in nasal surgery. Even the most radically inclined among us must admit that a "decortication of the face" is an unnecessarily severe operative procedure for correction of septal deviations or ablation of the turbinates or even freely exposing the maxillary antrum. This tendency to extreme radicalism must have its limitations. M. A. G.

Atlas of Special Surgery (Grundriss und Atlas der Speziellen Chirurgie).

By Prof. Dr. GEORG SULTON. Part I. Forty colored plates, 218 figures, 460 pages. (Lehmann's Medizin. Handatlanten, Vol. XXXVI.) Price, 16 marks (\$4.00). Publishers, J. F. Lehmann, Munich. 1907.

This volume of the well-known Lehmann Atlas Series is of special interest and value to the laryngologist and otologist, in as much as it presents the surgery of the brain and cranium, face, nose and accessory areas, the mouth, tongue and palate, tonsils, ear, neck and thyroid, larynx and trachea, and beyond the mediastinum into the thoracic cavity.

It is remarkable how much genuine merit has been put into these Atlases, and the illustrations of head and neck surgery and terse descriptions of technique are very satisfactory. M. A. G.

Diseases of the Throat, the Larynx, the Ear and the Nose. (Maladies de la Gorge, du Larynx, des Oreilles et du Nez.)

By E. J. MOURE, Prof. Adjoint a la Faculté de Médecine de Bordeaux, and A. Brindel, Aide de Clinique a la Faculté de Médecine de Bordeaux. 8vo., 700 pages, with 358 figures, some colored. Price, 9 francs. Publisher, Octave Doin, 8 Place de L'Odeon, Paris.

By the many valuable contributions, both of a practical and scientific nature which our able confrere of Bordeaux has made to Oto-Laryngology, he, together with his efficient aid, has prepared a firm foundation on which to build a more voluminous superstructure.

The volume just published is intended as a practical guide to the surgery of the Throat, Larynx, Ear and Nose, and it is a veritable epitome of valuable suggestions and practical hints, and contains more descriptive matter and original illustrations of operative technique and surgical treatment than any work devoted to this field with which we are familiar.

If we may be permitted the criticism, we would suggest that in subsequent editions of this valuable book the authors may deem it wise to improve the quality of the paper and binding, so that the excellence of the illustrations and the text may be given full prominence. M. A. G.

History of Otology. (Geschichte per Ohrenheilkunde.)

By Professor Dr. ADAM POLITZER. In two volumes. Vol. I, from the earliest beginning to the middle of the nineteenth century. Large 8vo., 467 pages, with 31 inserts and 19 illustrations in the text. Price: paper

bound, 20 marks; cloth bound, 22 marks. Publisher, Ferdinand Enke, Stuttgart.

Like all arts and sciences, Otology has its history, and like all toilers in an art or science, it is well that we should know something of the historical development of the field in which we work.

From whom could we expect a more polished, more complete and more delightfully presented history of Otology than from our esteemed and venerable teacher, the ever active and resourceful Professor Politzer, the grand Nestor of modern Otology.

With infinite pains and valuable collaboration he has collected, in a formidable-looking volume of 470 pages, the data referring to the development of Otology from its earliest empirical epochs to the second half of the nineteenth century.

He gives us, in these many pages, realistic pen-pictures of the slow evolution of Otology, the seeking of knowledge and for light, the difficulties encountered by the early anatomists, the evolutions and revolutions of early theories of otological science.

This book contains the works, labors and accomplishments of masters evolved from a scientific chaos and tangle, which has cost many hours of reading and of labor.

This is but volume one of Politzer's splendid undertaking, *Die Geschichte der Ohrenheilkunde*.
M. A. G.

The Labyrinth of Animals, Including Mammals, Birds, Reptiles and Amphibians.

By ALBERT A. GRAY, M. D. (Glas.), F. R. S. E., Surgeon for Diseases of the Ear to the Victoria Infirmary, Glasgow. Vol. I, 198 pages, 31 plates. Price, 21 Sh. net. Publishers, Messrs. J. & A. Churchill, 7 Great Marlborough St., London, W.

Not since the unusually complete investigations of Gustaf Retzius, in 1884, "*Das Gehörorgan der Wirbelthiere*" has an attempt been made to collect, systematize and present in tangible form the labyrinthian array of anatomy of the labyrinth as is undertaken and accomplished in such splendid form by Doctor Gray in this volume.

With the exception of fishes, the author has presented the anatomy of the labyrinth of all vertebrates, a stupendous work, when we pause to consider that many generations of anatomists have succeeded in building up only composite pictures from observations made upon small fragments, sections, and casts of the labyrinth.

This volume has an unusually valuable scientific significance, for it creates standards of comparison for the use of the student of comparative anatomy, and for the scientific workers in Otology.

The early chapters contain descriptions of the methods of preparation of the delicate structures of the membranous labyrinth, methods of photographing same for record, and for stereoscopic illustration.

The 31 plates are exact photographic reproductions of the specimens prepared by the author, and it is the most beautiful work of the kind that we have ever seen. To facilitate the study of these pictures a small hand-steroscope accompanies the volume. It is intended that the work shall be complete in two volumes, but should important new material arrive during publication, the author states that it may be necessary to bring out a small supplementary volume.

Doctor Gray deserves the praise and commendation of all scientific workers and especially of the thinking, discerning Otologist, to whom the results of the many years of labor involved in the preparation of this work may offer much knowledge of pathological conditions, and may, perhaps, be an incentive to suggestions and means of relief for deafness, tinnitus, and vertigo, conditions which have thus far baffled us from every direction.
M. A. G.

SELECTED ABSTRACTS.

When shall we advise Tympano-Mastoid Exenteration, in the Treatment of Suppurative Otitis Media, and in what Percentage of Cases may we Expect a Cure. H. O. REIK, M.D., Associate in Ophthalmology and Otology, Johns Hopkins University.

The author reviewed the improvements which have taken place in the treatment of Aural disease and expressed the belief that it is our duty to teach the family physician and the public to recognize the fact that purulent otorrhoea is a symptom of a disease which has a most important bearing upon the patient's continued enjoyment of health and life; that it demands immediate and continuous treatment until a cure results, inasmuch as it is susceptible of cure in almost every instance and, that while we sometimes speak of that measure which is employed as a last resort in the treatment as "a radical operation," it is not *radicalism*, but *conservatism*, which demands surgical intervention in chronic suppurative otitis media when other means of treatment have failed of effect. The author, after considering in detail the various methods of treating the disease in accordance with its varying pathological changes in each case, expressed the opinion that if careful attention be given to all of these details, only a small minority of all the cases of chronic otorrhoea would ever require the operation of tympano-mastoid exenteration.

Regarding the small number of cases, he asked the following questions: (1) What are the indications that justify tympano-mastoid exenteration? (2) What are the dangers and risks of the operation as compared with the disease untreated? (3) What may we safely say to the patient regarding relief from the otorrhoea and the restoration of function?

Each of these questions was considered in full and the following conclusions drawn:

1. Broadly speaking, practically every case of suppurative otitis media is assumed to be susceptible of cure by one means or another.
2. Every case of chronic suppurative otitis media, without symptoms of intracranial invasion, should be treated patiently and per-

sistently for a reasonable length of time, but not indefinitely, by well directed efforts at a cleanliness and anti-sepsis through the external auditory canal. When it becomes evident that these simple measures or minor operations cannot cure the disease, tympano-mastoid exenteration should be advised unless in a given case there exists some special reason of a socio-economic character that justifies delay and the risks of the disease.

3. The clinical evidences of an inveterate purulency that may help one to decide the question of when to recommend operation, are the finding of cholesteatomatous masses, epithelial cells or bone dust in the washings from the middle ear, the tracing of the source of pus to the mastoid antrum or labyrinthine capsule, or the existence of granulomata springing from various areas of the tympanic wall which cannot be directly inspected and treated.

4. The possible dangers of the operation are believed to be far less than those of the disease.

5. The patient should be told that not every case is curable, even by an operation (the percentage of cures in the obstinately chronic cases probably approximating 70%), that the hearing power will probably not be improved, and may be somewhat impaired, but, that the serious nature of his disease warrants surgical intervention as a prophylactic measure.

6. Every patient upon whom an operation of typano-mastoid exenteration is contemplated should be most carefully studied for a considerable period of time, in order that the slightest evidence of latent meningitis or purulent labyrinthitis may be detected, and when there exists any reason to suppose that the disease has extended beyond the bounds of the tympanic cavity, the patient or his guardians should be told that an element of danger attends the operation. The possibility of post-operative complications cannot be ignored, and the surgeon must safe-guard himself.

Periodic Autumnal Catarrh; Vaso-Motor Coryza; The So-Called Hay-Asthma. C. C. MAPEC. *The Medical Age*, Sept., 1905.

The writer gives a resumé of the various theories advanced by various authors as to the cause and treatment of this affection.

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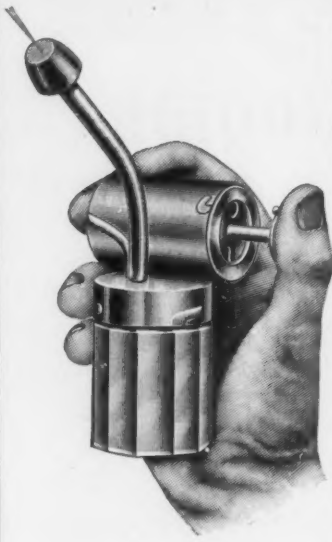
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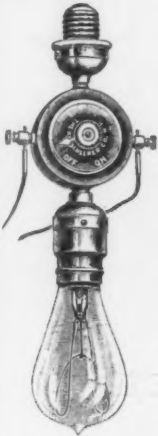
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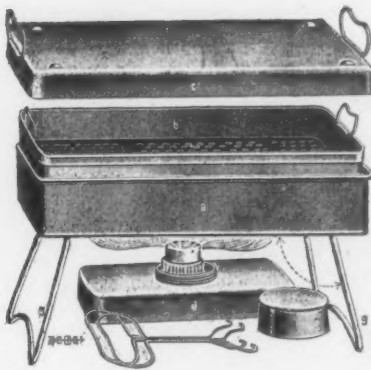


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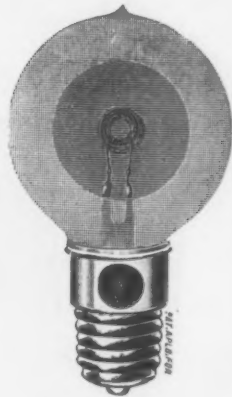
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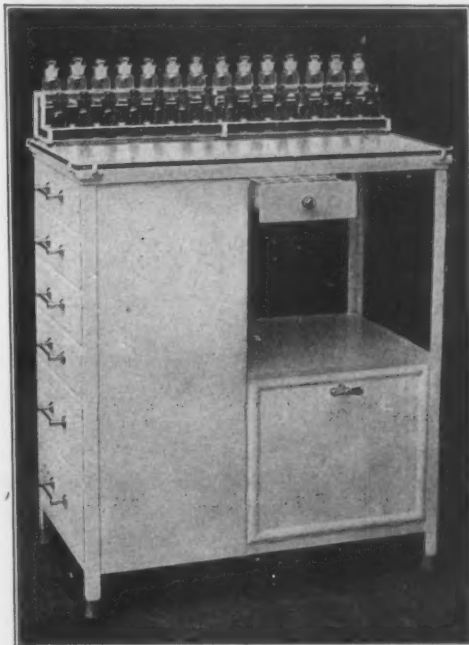
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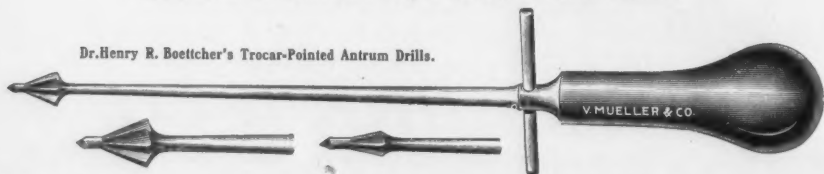
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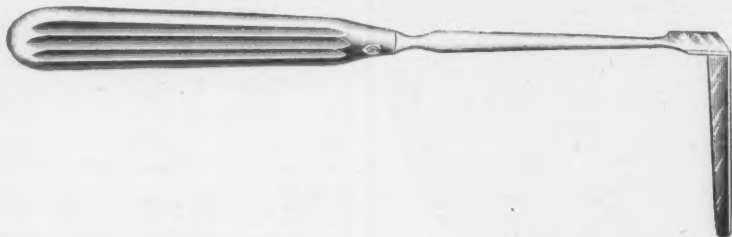
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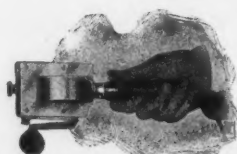
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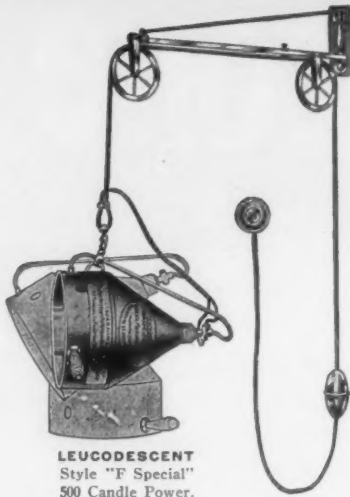
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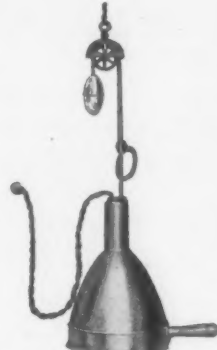
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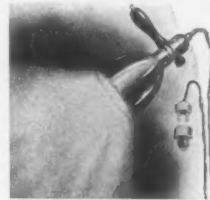
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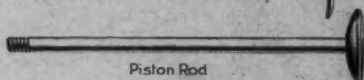
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